AKAI
DIGITAL

DR8

HARD DISK RECORDER

Operator's Manual

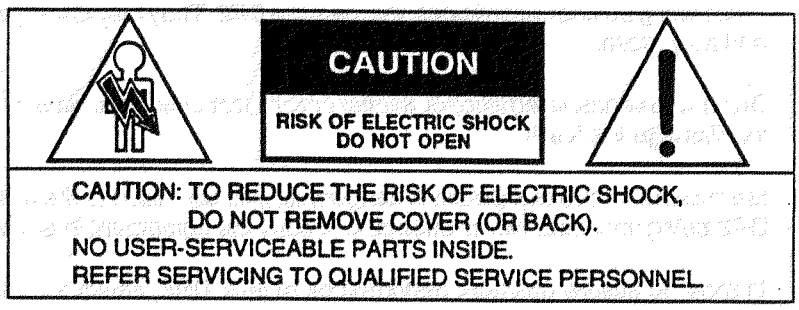
WARNING

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

WARNING!!

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

1-En


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

THE SYMBOLS ARE RULED BY UL STANDARDS (U.S.A)

The lightning flash with the arrowhead symbol superimposed across a graphical representation of a person, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intented to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

5A-En

WARNING

The DR8 is designed to be used in a standard household environment.
Power requirements for electrical equipment vary from area to area. Please ensure that your DR8 meets the power requirements in your area. If in doubt, consult a qualified electrician or Akai Professional dealer.

120VAC	@ 60Hz for USA and Canada
220-230/240VAC	@ 50Hz for Europe
240VAC	@ 50Hz for Australia

PROTECTING YOURSELF AND THE DR8

* Never touch the AC plug with wet hands.
* Always disconnect the DR8 from the power supply by pulling on the plug, not the cord.
* Allow only an Akai Professional dealer or qualified professional engineer to repair or reassemble the DR8. Apart from voiding the warranty, unauthorized engineers might touch live internal parts and receive a serious electric shock.
* Do not put, or allow anyone to put any object, especially metal objects, into the DR8.
* Use only a household AC power supply. Never use a DC power supply.
* If water or any other liquid is spilled into or onto the DR8, disconnect the power, and call your dealer.
* Make sure that the unit is well-ventilated, and away from direct sunlight.
* To avoid damage to internal circuitry, as well as the external finish, keep the DR8 away from sources of direct heat (stoves, radiators, etc.).
* Avoid using aerosol insecticides, etc. near the DR8. They may damage the surface, and may ignite.
* Do not use denaturated alcohol, thinner or similar chemicals to clean the DR8. They will damage the finish.
* Modification of this equipment is dangerous, and can result in the functions of the DR8 being impaired. Never attempt to modify the equipment in any way.
* In order to assure optimum performance of your DR8, select the setup location carefully, and make sure the equipment is used properly. Avoid setting up the DR8 in the following locations:
    1. In a humid or dusty environment
    2. In a room with poor ventilation
    3. On a surface which is not horizontal
    4. Inside a vehicle such as a car, where it will be subject to vibration
    5. In an extremely hot or cold environment

FCC WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help. 21B-En

AVIS POUR LES ACHETEURS CANADIENS DU DR8

Le présent appareil numérique n'ément pas des bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada 27-F

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications. 27-En

FÜR KUNDEN IN DER BUNDESREPUBLIK DEUTSCHLAND

Bescheinigung von AKAI

Hiermit wird bescheinigt, daß das Gerät AKAI
DR8
in Übereinstimmung mit den Bestimmungen der
Amtsblattverfügung 1046/1984
funkentstört ist.

Der Deutschen Bundespostwurde das Inverkehrbringen dieses Gerätes angezeigt und die Berichtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.
AKAI ELECTRIC CO., LTD 17B-G

COPYRIGHT NOTICE

The AKAI DR8 is a computer-based device, and as such contains and uses software in ROMs. This software, and all related documentation, including this Owner's Manual, contain proprietary information which is protected by copyright laws. All rights are reserved. No part of the software or its documentation may be copied, transferred or modified. You may not modify, adapt, translate, lease, distribute, resell for profit or create derivative works based on the software and its related documentation or any part there of without prior written consent from AKAI Electric Co. Ltd, Tokyo, Japan.

WARNING

THIS APPARATUS MUST BE EARTHED

IMPORTANT

This equipment is fitted with an approved non-rewireable UK mains plug.

To change the fuse in this type of plug proceed as follows:

1) Remove the fuse cover and old fuse.
2) Fit a new fuse which should be a BS1362 5 Amp A.S.T.A or BSI approved type.
3) Refit the fuse cover.

If the AC mains plug fitted to the lead supplied with this equipment is not suitable for your type of AC outlet sockets, it should be changed to an AC mains lead, complete with moulded plug, to the appropriate type. If this is not possible, the plug should be cut off and a correct one fitted to suit the AC outlet. This should be fused at 5 Amps.

If a plug without a fuse is used, the fuse at the distribution board should NOT BE GREATER than 5 Amp.

PLEASE NOTE: THE SEVERED PLUG MUST BE DESTROYED TO AVOID A POSSIBLE SHOCK HAZARD SHOULD IT BE INSERTED INTO A 13 AMP SOCKET ELSEWHERE.

The wires in this mains lead are coloured in accordance with the following code:

GREEN and YELLOW	— EARTH
BLUE	— NEUTRAL
BROWN	— LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, please proceed as follows:

The wire which is coloured GREEN and YELLOW must be connected to the terminal which is marked with the letter E or with the safety earth symbol ⏚ or coloured GREEN or coloured GREEN and YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

THIS APPARATUS MUST BE EARTHED

Ensure that all the terminals are securely tightened and no loose strands of wire exist.

Before replacing the plug cover, make certain the cord grip is clamped over the outer sheath of the lead and not simply over the wires.

6D-En

This equipment conforms to No.82/499/EEC, 87/308 EEC standard.

3A-En

CONFORME AL D.M. 13 APRILE 1989 DIRETTIVA CEE/87/308

3B-It

WARRANTY

AKAI Electric Co. Ltd warrants its products, when purchased from an authorized AKAI dealer, to be free from defects in materials and workmanship for a period of 12 (twelve) months from the date of purchase. Warranty service is effective and available to the original purchaser only, and only on completion and return of the AKAI Warranty Registration Card within 14 days of purchase.

Warranty coverage is valid for factory-authorized updates to AKAI instruments and their software, when their installation is performed by an authorized AKAI Service Centre, and a properly completed Warranty Registration has been returned to your Akai Professional dealer.

To obtain service under this warranty, the product must, on discovery of the defect, be properly packed and shipped to the nearest AKAI Service Centre. The party requesting warranty service must provide proof of original ownership and date of purchase of the product.

If the warranty is valid, AKAI will, without charge for parts or labour, either repair or replace the defective part(s). Without a valid warranty, the entire cost of the repair (parts and labour) is the responsibility of the product's owner.

AKAI warrants that it will make all necessary adjustments, repairs and replacements at no cost to the original owner within 12 (twelve) months of the purchase date if:

1 The product fails to perform its specified functions due to failure of one or more of its components.

2 The product fails to perform its specified functions due to defects in workmanship.

3 The product has been maintained and operated by the owner in strict accordance with the written instructions for proper maintenance and use as specified in this Operator's Manual.

Before purchase and use, owners should determine the suitability of the product for their intended use, and the owner assumes all risk and liability whatsoever in connection therewith. AKAI shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use, or inability to use the product.

The warranty provides only those benefits specified, and does not cover defects or repairs needed as a result of acts beyond the control of AKAI, including, but not limited to:

1 Damage caused by abuse, accident or negligence. AKAI will not cover under warranty any original factory disk damaged or destroyed as a result of the owner's mishandling.

2 Damage caused by any tampering, alteration or modification of the product: operating software, mechanical or electronic components.

3 Damage caused by failure to maintain and operate the product in strict accordance with the written instructions for proper maintenance and use as specified in this Operator's Manual.

4 Damage caused by repairs or attempted repairs by unauthorized persons.

5 Damage caused by fire, smoke, falling objects, water or other liquids, or natural events such as rain, floods, earthquakes, lightning, tornadoes, storms, etc.

6 Damage caused by operation on improper voltages.

IMPORTANT NOTE: This warranty becomes void if the product or its software is electronically modified, altered or tampered with in any way.

AKAI shall not be liable for costs involved in packing or preparing the product for shipping, with regard to time, labour or materials, shipping or freight costs, or time and expenses involved in transporting the product to and from an AKAI Authorized Service Centre or Authorized Dealer.

AKAI will not cover under warranty an apparent malfunction that is determined to be user error, or the owner's inability to use the product.

THE DURATION OF ANY OTHER WARRANTIES, WHETHER IMPLIED OR EXPRESS, INCLUDING BUT NOT LIMITED TO THE IMPLIED CONDITION OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

AKAI hereby excludes incidental or consequential damages, including but not limited to:

1 Loss of time

2 Inconvenience

3 Delay in performance of the Warranty

4 The loss of use of the product

5 Commercial loss

6 Breach of any express or implied warranty, including the Implied Warranty of Merchantability, applicable to this product

Precautions When Using the Installed Hard Disk Drive

1. The hard disk drive has extremely high precision and is vulnerable to shock and vibration. If transporting the DR8 by either land or air, we recommend packing it in a shell-shaped case lined with urethane rubber which meets ATA specifications.

2. Make sure the DR8 is used in the horizontal position. Do not set it on end or tilt it when using it.

3. If the DR8 is moved from a cold location to a warm one, or if the temperature has been raised suddenly, condensation may form inside the DR8. If it is impossible to avoid conditions like these, let the DR8 sit for at least an hour in the new location before using it.

4. When setting up the DR8, make sure the ventilation opening is not blocked. Also, if using the DR8 in a rack that contains other equipment, make sure sufficient ventilation space is assured on all sides (approx. 44 mm of space between the DR8 and any equipment mounted above or below it in the rack).

Contents

Introduction 1
- What is the DR8? 1
- Signal Flow 3
- Level Diagram 5
- Inside the DR8 6

1 Front and Rear Panels 7
- Front Panel 7
- Rear Panel 19

2 Getting Around the DR8 24
- Operating Modes 24
- Operation 25
- Entering Time Values 27

3 Setting Up the DR8 29
- Typical DR8 Setup 30

4 Recording 31
- Sampling Frequency 31
- Input Source 33
- Selecting the Input Channels 35
- Starting & Stopping Recording 38
- Punch-In Functions 40
- Recording Undo 44

5 Playback 45
- Outputs 45
- Starting & Stopping Playback 46
- Special Play Keys 47
- Repeat 50
- Varispeed 52

6 Mixer 53
- Individual Channel Settings 54
- System Settings 58
- Snapshot Settings 61
- Mapping Snapshots 62
- Other Functions 64

7 Take Functions 65
- Other Take Applications 68

8 Locate Functions 69
- Direct Locate Points (1 ~ 9 Keys) 70
- Stack Locate Points 71
- Last Memory 72
- Preroll 73

9 Time Display 74
Setting Relative Time to Zero 75
Setting a Relative Time Offset 75

10 Editing 77
Undoing an Edit 78
Copy 79
Copy+Insert 81
Move 82
Move+Insert 83
Insert 84
Erase 85
Delete 86
Slip 87

11 Hard Disks 89
SCSI 90
Checking for Disks 93
External Hard Disk Operating Precautions 94
Formatting Disks 95
Erasing Disks 96
Aligning Disks 97
Copying Disks 98

12 Backup and Restore 100
Backup 100
Restore 102

13 Synchronization 104
SMPTE/EBU Synchronization 104
MIDI Synchronization 107

14 Song Mode 110
Creating a Song 112
Creating a Beat Map 114
Creating a Tempo Map 115

15 Other Functions 116
System Set up 116
SCMS 119

Appendix 120
Specifications 120
MIDI Implementation Chart 122
Block Diagram 123

Index 124

Introduction

From all at Akai, thank you for purchasing an Akai DR8 Hard Disk Recorder, and welcome to the exciting world of hard disk recording.

Please take the time to read this manual. It will allow you to get the best out of your DR8.

What is the DR8?

Take a conventional eight-track recorder, replace all the analog circuitry with the latest digital audio processing technology, replace the tape transport with a hard disk for near-instant digital audio data access, and add a 16-channel programmable digital mixer — the result is the DR8.

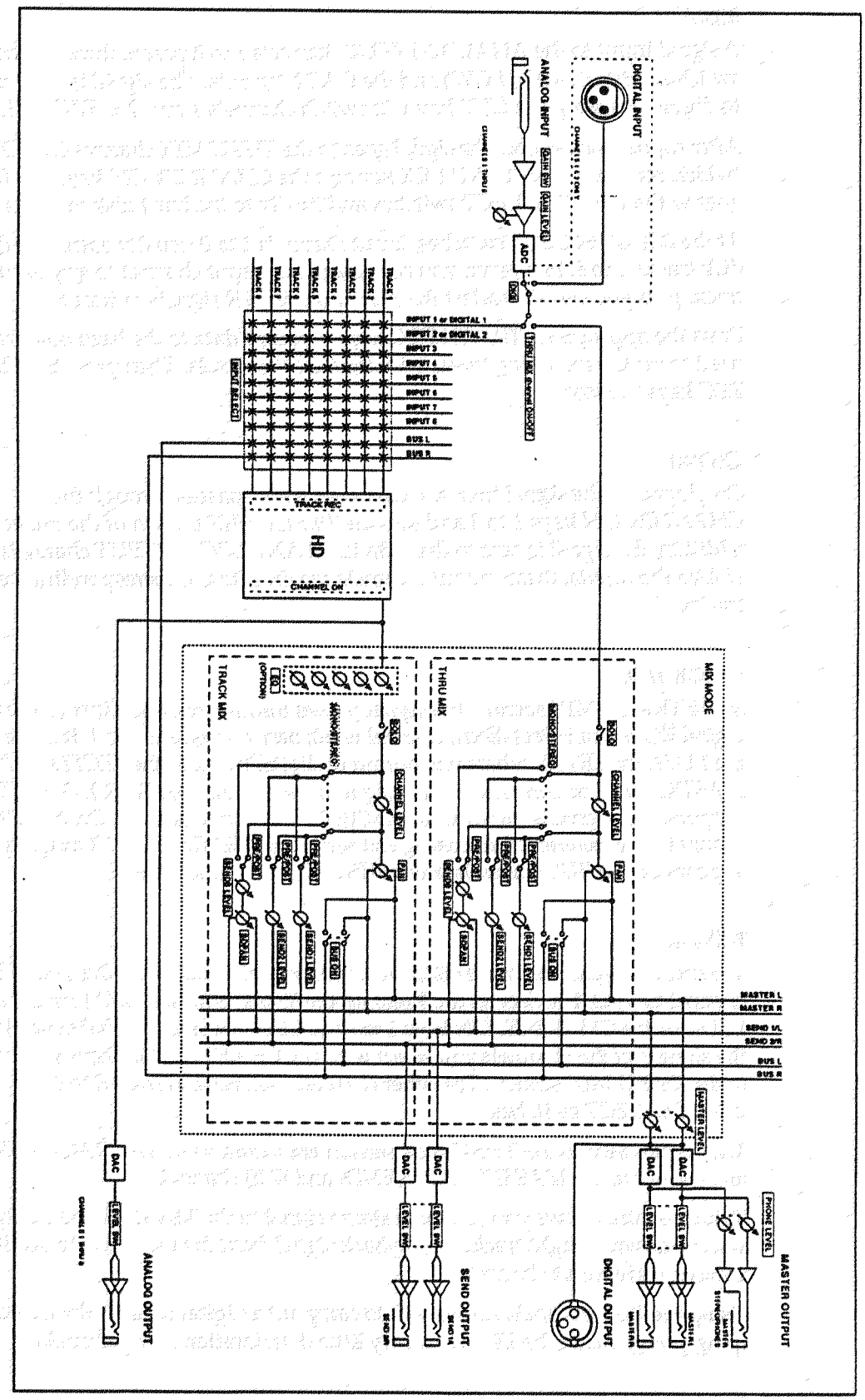
The DR8 is an 8-track digital hard disk recorder and editor, with a built-in digital mixer. It contains many of the features and functions you would normally expect, such as CD quality audio, non-destructive editing, etc., but unlike computer-based systems, the DR8 is as easy to use as an ordinary multi-track tape recorder.

Features

- 8-track hard disk recorder with familiar multi-track recorder (MTR) operation.
- 16-channel programmable digital mixer with recall (8 tracks from hard disk plus 8 external audio inputs).
- 18-bit 64-times oversampling A/D converters.
- 20-bit 8-times oversampling D/A converters.
- 16-bit linear PCM recording.
- 17 channel minutes per 100MB of hard disk (fs @ 48 kHz).
- Up to six SCSI hard disks can be connected.
- Instant playback start.
- Near-instant data access, no time consuming rewinds, etc.
- Autolocator with 100 locate points.
- Absolute and relative time modes, with sync offset.
- Beat/tempo map for MIDI Clock synchronize operation.
- Adjustable preroll.
- Varispeed playback.
- Punch in/out includes: manual, auto (with rehearsal), and footswitch.
- Jog/shuttle control for locating edits.
- Take functions allow you to select from five different recordings.
- Edit functions include: copy, copy+insert, move, move+insert, erase, delete, slip, insert, and edit undo.
- Balanced 1/4 inch phone jack analog inputs and outputs for 8 individual channels plus two stereo channels.

- XLR and RCA/phono digital inputs and outputs (AES/EBU or S/PDIF).
- Backup to DAT via digital I/O.
- Optional IB-801S SCSI-B interface board allows you to connect the DR8 to personal computers and other peripheral devices.
- Optional IB-802T SMPTE reader/generator board for time-code synchronization.
- Optional IB-803M MIDI interface board for MIDI sequencer synchronization.
- Optional digital EQ board.

Signal Flow


ANALOG INPUT
DIGITAL INPUT
ADC
TRACK REC
HD
CHANNEL ON
TRACK MIX
THRU MIX
MIX MODE
DAC
ANALOG OUTPUT
SEND OUTPUT
DIGITAL OUTPUT
MASTER OUTPUT

Description of Signal Flow

Input

A signal input to the ANALOG INPUT channels 1 to 8 passes through the gain switches (HIGH, MID, LOW) and the GAIN controls. The signal is then converted to digital. Pressing the DIGI key will switch channels 1 and 2 to DIGITAL I/O - IN.

After digital conversion, the signal goes to the THRU MIX channel ON/OFF switch (which consists of the THRU MIX key and the CHANNEL ON keys 1 to 8). Then it goes to the INPUT SELECT switches and finally to the hard disk for recording.

At the INPUT SELECT switches, input channels 1 to 8 usually correspond to hard disk tracks 1 to 8. However, you can assign any input channel to any hard disk track, plus you can also select the BUS L and BUS R signals as input.

Press the appropriate TRACK REC keys to record data to the hard disk tracks. You need to set the recording levels with the GAIN controls. Then press the Play and REC keys to record.

Output

On playback, the signal from the hard disk tracks passes through the CHANNEL ON keys 1 to 8 and into the TRACK MIX section of the mixer. In addition, the signal is sent to the individual ANALOG OUTPUT channels 1 to 8. Unlike the inputs, these output channels are fixed to the corresponding hard disk tracks.

TRACK MIX

In the TRACK MIX section, the signal passes through the equalizer (if the optional digital EQ board is installed), channel level, pan, and effects send. It is then sent to the MASTER LEVEL where it is output in digital through the DIGITAL I/O - MASTER OUT or converted to analog and then to the MASTER L/R or PHONES outputs. The signal is also sent to the SEND and BUS channels. On the SEND channels, it is converted to analog and sent to the SEND 1/L-2/R outputs. It only appears on the BUS channels if the BUS ON switch is selected.

THRU MIX

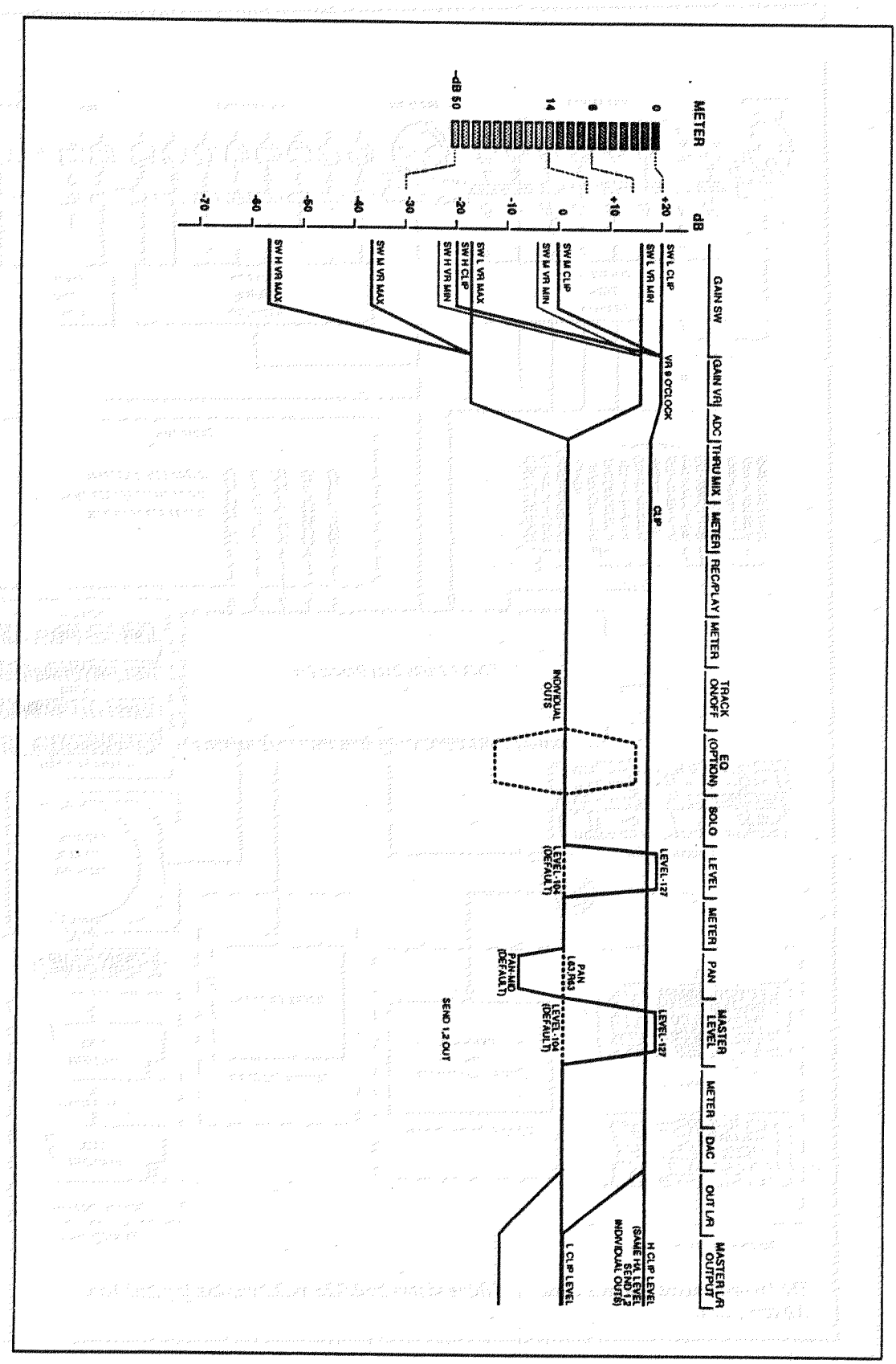
To send the signal into the THRU MIX section of the mixer, set the THRU MIX channel ON/OFF switch to on. Pressing the THRU MIX key will turn off all the LEDs for the CHANNEL ON keys 1 to 8 (all LEDs are lit in normal condition). Only the signals of the channels you select with the CHANNEL ON keys will be routed to the THRU MIX section. The other channels will remain routed to the INPUT SELECT switches.

The signals sent to the THRU MIX section are mixed as in the TRACK MIX section and routed to the MASTER OUT, SEND, and BUS channels.

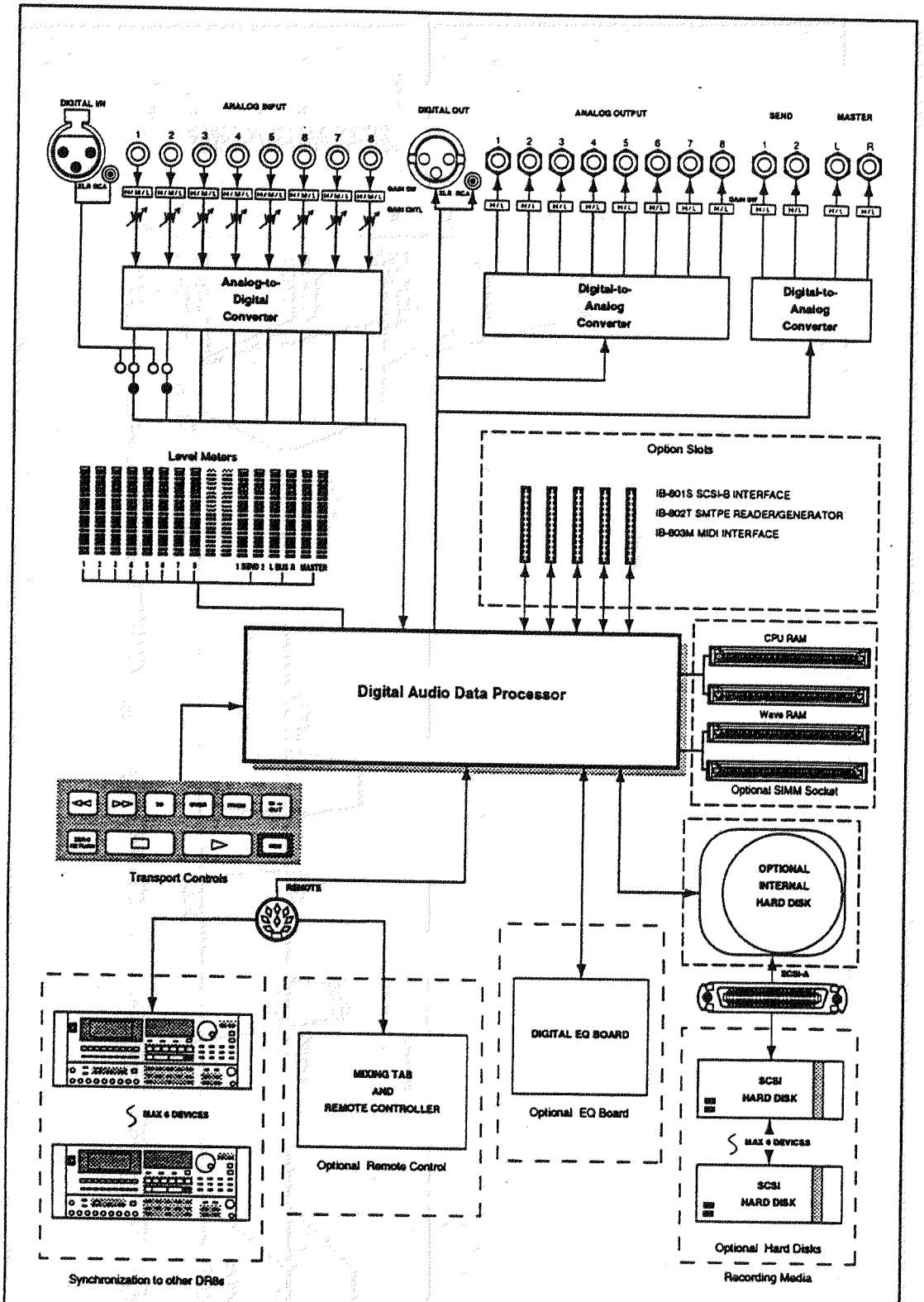
This structure allows you to send a stereo signal to the MASTER OUT outputs that is a mixdown of eight tracks of playback signal from the hard disk in addition to another eight input channels.

Using the BUS channels allows you to carry out a digital bounce-down recording (ping-pong) inside the DR8 with very little deterioration in tonal quality.

Level Diagram



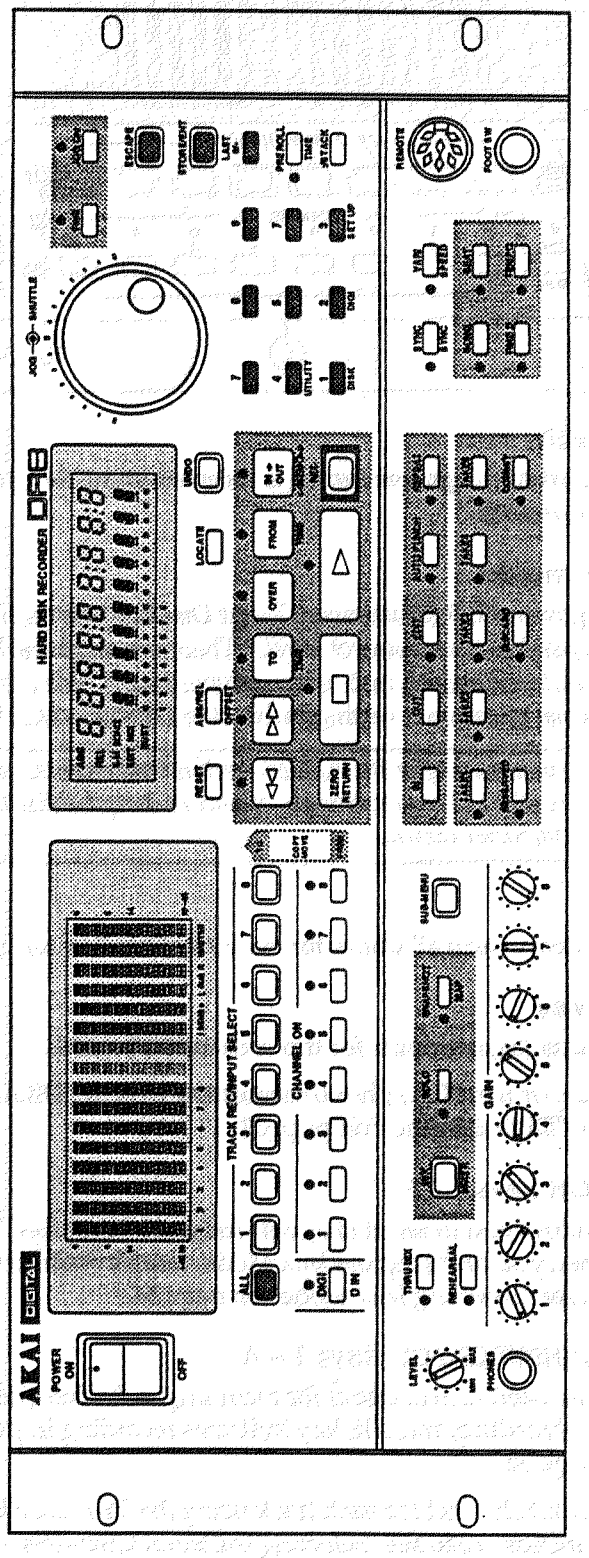
Inside the DR8

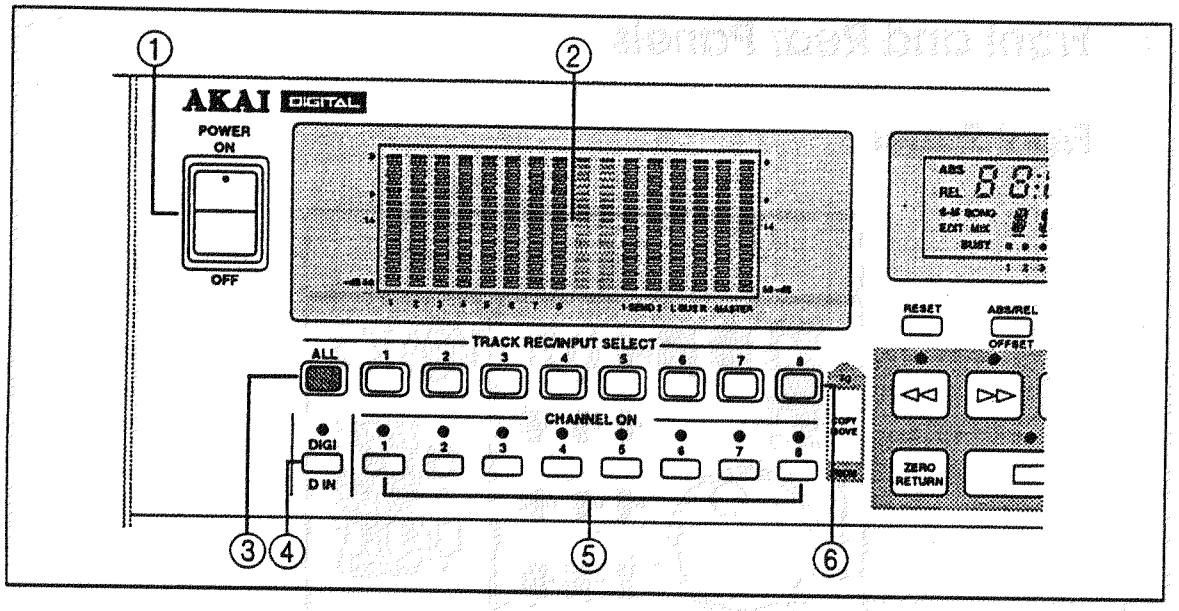


The DR8HD model has an internal hard drive as standard. The model number is printed on the rear panel.

1 Front and Rear Panels

Front Panel





1) POWER switch

The rocker part of the power switch is recessed in the ON position to prevent accidental power off.

2) Peak Level meters

These 20-segment FLD (Fluorescent Light Display) bargraphs with peak hold indicate the playback and source levels. There are eight track level indicators along with the send, bus routing, and stereo master levels. The bargraphs are used to display channel parameter settings when the DR8 is in Mix Mode.

> **Note:** *These meters are after the A/D converters in the signal path. Therefore when the amber 0 dB (Peak) FLD segment lights, it indicates digital distortion. You should adjust the levels so this never occurs.*

3) ALL key

This key is used to arm all tracks for recording. See "Arming Tracks" on page 38.

4) DIGI(D IN) key

This key selects digital inputs for input channels 1 and 2.

Select the XLR or the RCA/phono connectors with the DIGI(D IN) sub-menu function. See "Digital Inputs" on page 33.

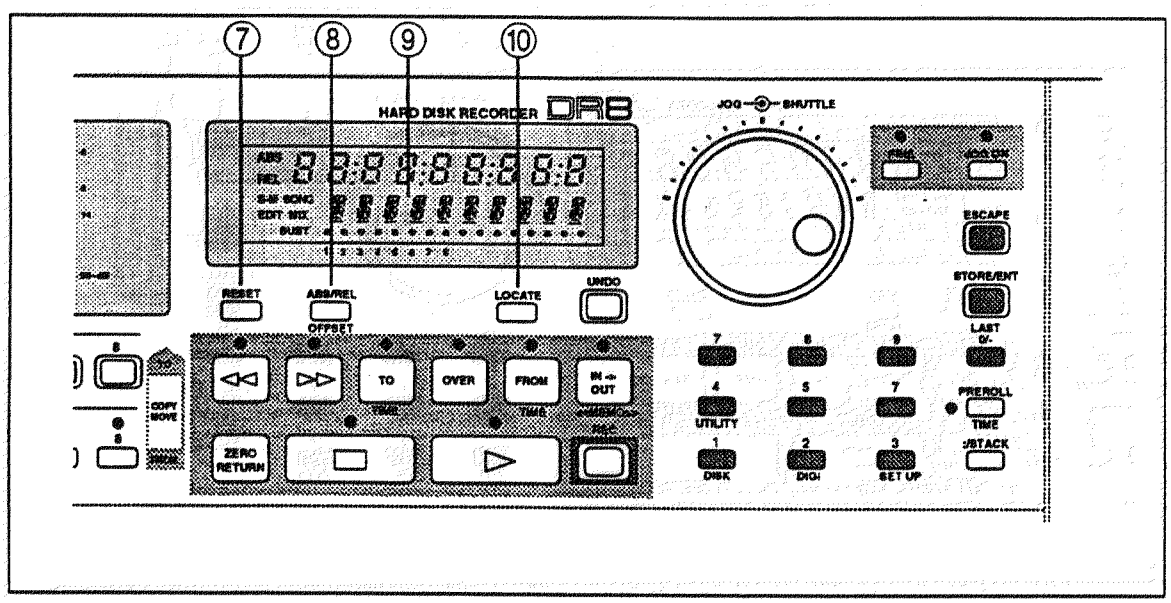
5) CHANNEL ON keys 1 ~ 8

These keys allow you to select channels for monitoring. See "Monitoring" on page 43. When you are using the Mix Mode, these keys select the channel you want to edit. Also see "Selecting Mix Mode" on page 54.

6) TRACK REC(INPUT SELECT) keys 1 ~ 8

These keys are used to arm tracks for recording. A flashing key indicates that a track is armed for recording, and a lit key indicates recording in progress. See "Arming Tracks" on page 38.

Assign the input channel for each track using the TRACK REC(INPUT SELECT) sub-menu function. Also see "Selecting the Input Channels" on page 35.



7) RESET key

This key is used to reset the relative time to zero. If it is pressed while an absolute time is displayed, relative time will be selected automatically, just like pressing the ABS/REL key.

8) ABS/REL(OFFSET) key

This key switches the display between absolute time and relative time. Absolute time starts at zero, cannot be changed, and works as the base time for relative time. When synchronizing using SMPTE timecode, the relative mode can be used to set synchronization offsets.

Set the offset for relative time with the ABS/REL(OFFSET) sub-menu function.

9) Time and Status display

This custom FLD (Fluorescent Light Display) shows recording time information and messages indicating the system status.

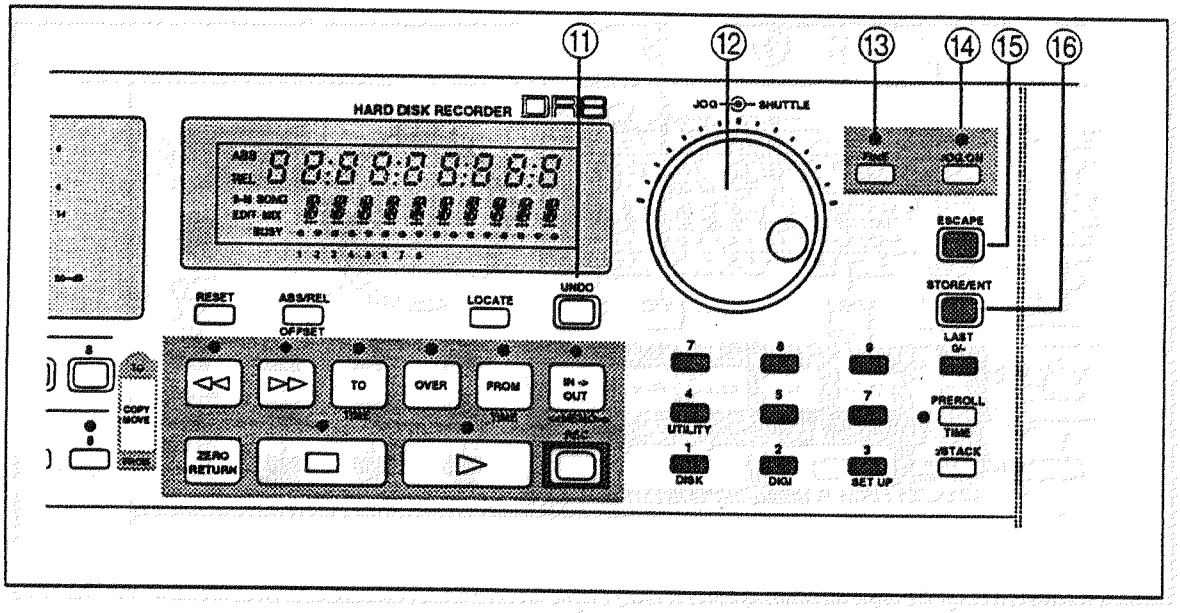
The top row of nine 7-segment digits display time, either absolute or relative. It may also be switched to show bars, beats and clocks.

The bottom row of 14-segment digits display status, sub-menu, and error messages. Also in this display, the current mode is displayed.

The **"BUSY"** indicator at the bottom of the display shows hard disk activity. Beside it, a row of small dots show activity for each of the 8 tracks and indicate that data exists on the track at the current position.

10) LOCATE key

This key is used to enter locate time values. See "Locate Functions" on page 69 and "Specifying the "in" Point and "out" Point" on page 27



11) UNDO key

This key allows you to undo the last recording or edit. This is useful if you make a mistake while recording and want to return to the previous recording. Likewise, when editing you can compare the material before and after an edit. See "Recording Undo" on page 44 and "Undoing an Edit" on page 78.

12) JOG/SHUTTLE control

The inner JOG wheel allows you to locate while listening to a recording. Playback speed is determined by how fast you turn the wheel. Turn it counterclockwise to review and clockwise to preview. The effect is similar to reel-rocking on an analog tape recorder — you can use it to identify edit points precisely. In certain modes such as MIX, SONG and SUB-MENU, this wheel is also used for data entry. Turn it counterclockwise to decrease values and clockwise to increase them.

Like the JOG wheel, the outer SHUTTLE control also allows you to locate while listening to a recording. The playback speed is determined by the angle at which you hold the control. Turn it counterclockwise to review and clockwise to preview. The SHUTTLE control is also used to move the cursor (input point) when setting certain parameter values. See "Cursor" on page 25.

13) FINE key

This key allows you to increase the resolution of the jog wheel for more precise selection of time location points.

14) JOG ON key

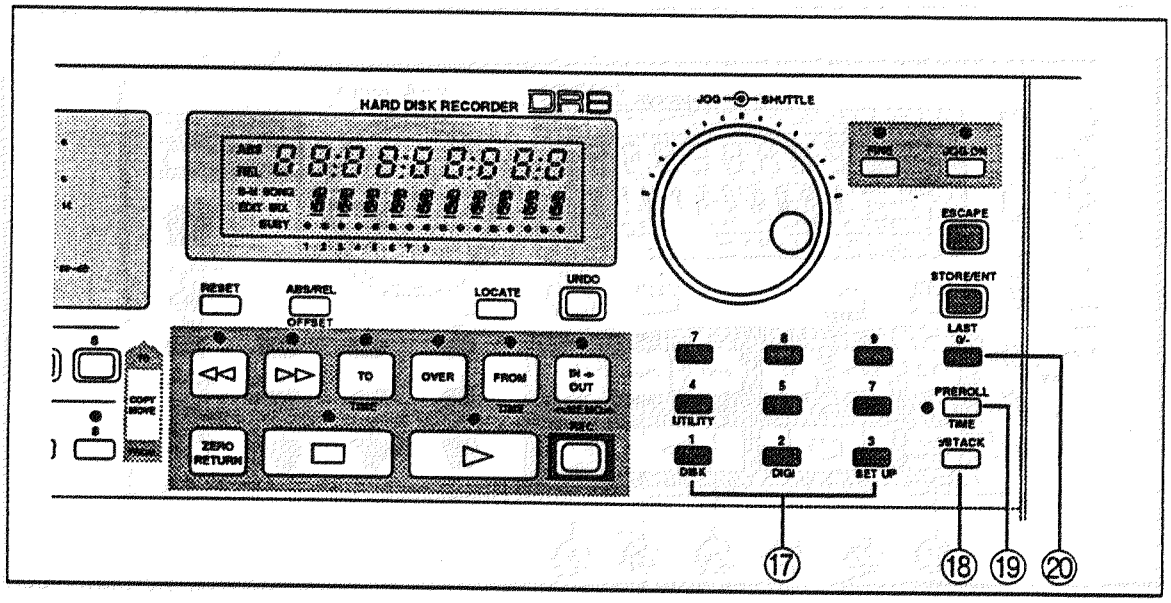
This key allows you to switch the JOG/SHUTTLE control on and off. When the LED is lit, the JOG/SHUTTLE control can be used to locate while listening to a recording. Otherwise, the JOG/SHUTTLE control cannot be used to locate.

15) ESCAPE key

This key can be used to escape from the current edit or sub-menu function.

16) STORE/ENT key

This key is used when entering and storing time values, executing edit functions, etc.



17) Numeric keypad - 1(DISK), 2(DIGI), 3(SET UP), 4(UTILITY), 5, 6, 7, 8, 9

These keys are used to store and recall direct locate points, enter time values, and set parameter values.

You can perform a variety of operations on the hard disk with the 1(DISK) sub-menu functions.

Set the sampling frequency and other related functions with the 2(DIGI) sub-menu functions.

Adjust the display brightness, drop the sub-frame notation, and assign MIDI controller numbers with the 3(SET UP) sub-menu functions. See "System Set up" on page 116.

The 4(UTILITY) sub-menu functions are used for data exchange between the DR8 and the DD1500. A future software release will support MO drives and allow communication with the DD1500. See your Akai professional dealer for more details.

18) LAST 0/- key

This key is used to locate to the last two points at which the stop key was pressed. Press the key once to locate to the last point at which the stop key was pressed. Press again to locate to the previous point. See "Last Memory" on page 72.

This key is also used for entering time and parameter values, and entering negative values.

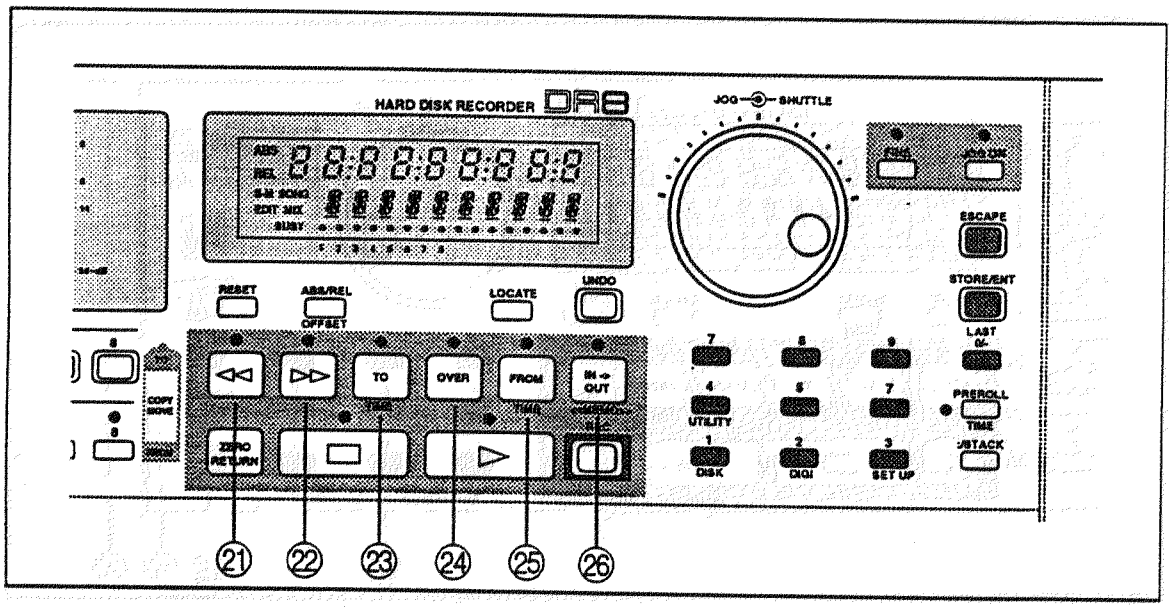
19) PREROLL(TIME) key

This key is used to switch on the preroll function. Preroll allows you to locate to a point a few seconds before a specified point, for example, to provide a count-in to an overdub. See "Preroll" on page 73.

The preroll value is set using the PREROLL(TIME) sub menu function.

20) :/STACK key

This key is used to enter and recall the 100 stack locate points (00-99). It is also used as a shortcut during locate data entry. See "Stack Locate Points" on page 71.



21) Rewind ⏪ key

This key is like the rewind key found on most conventional tape recorders. In stop mode, it activates time display fast rewind.

22) Fast Forward ⏩ key

This key is like the fast forward key found on most conventional tape recorders. In stop mode, it activates time display fast forward.

23) TO(TIME) key

This key will start playback at a specified number of seconds before the current position, i.e., the currently displayed time. The default is one second. Playback will stop when the current position is reached. The number of seconds can be specified in the TO(TIME) sub-menu function.

24) OVER key

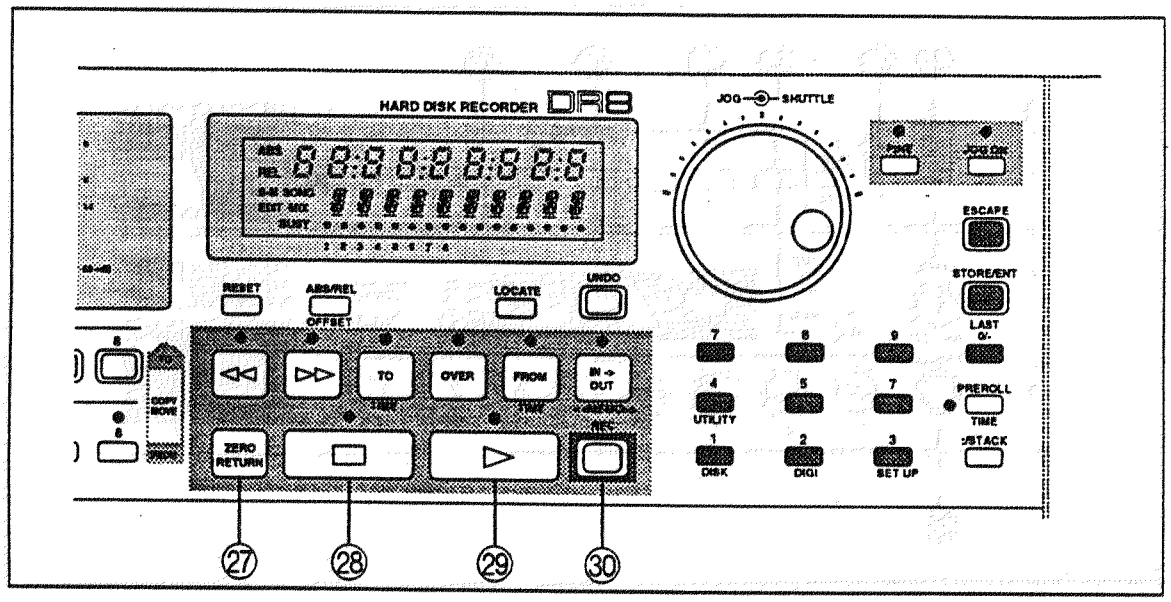
This key will start playback at a specified number of seconds before the current position. Playback will stop the same number of seconds beyond the current point. The default is one second before and one second after the current point. The number of seconds are specified with the TO(TIME) and FROM(TIME) sub-menu functions.

25) FROM(TIME) key

This key will start playback at the current position. Playback will stop a specified number of seconds beyond the current point. The default is one second. The number of seconds can be specified in the FROM(TIME) sub-menu function.

26) IN->OUT(<<MEMO>>) key

This key will start playback from the current "in" point to the current "out" point. You set these points with "IN key""OUT key" on page 16. After playback, the DR8 returns to the original time. You can save up to nine specific "in" and "out" points with the IN->OUT(<<MEMO>>) sub-menu function. See "Using the <<MEMO>> function" on page 28.



27) ZERO RETURN key

In absolute mode, this key will locate to the absolute 0 0:0 0:0 0:0 0.0 point.

In relative mode, it will locate to the relative 0 0:0 0:0 0:0 0.0 point.

28) Stop ▭ key

This key is used to stop playback, recording, fast forward, and rewind.

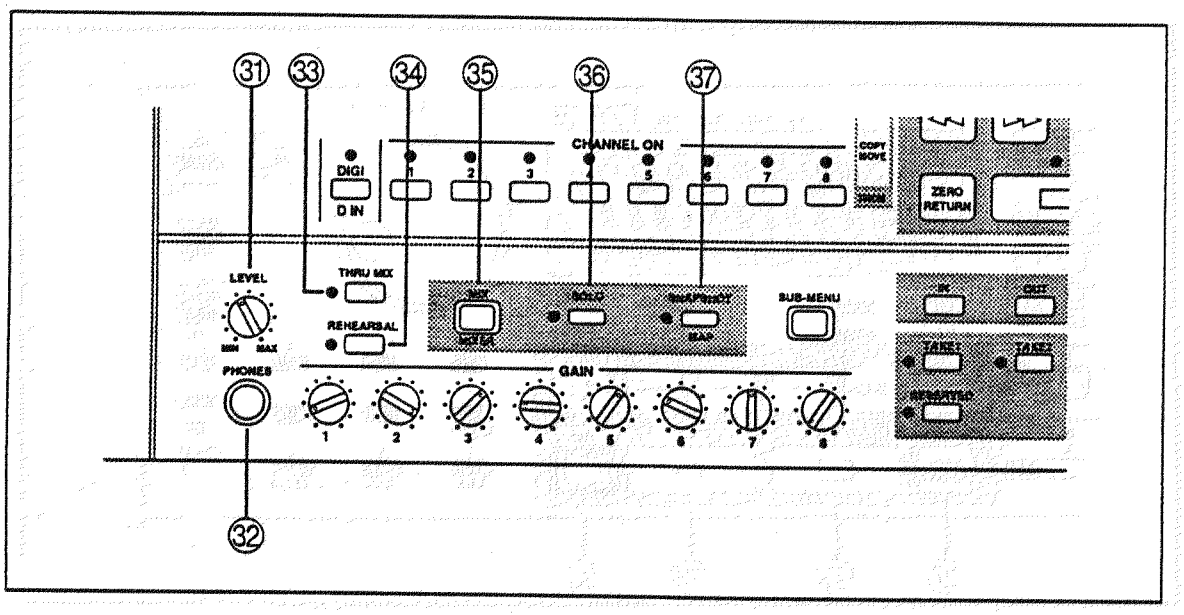
When Stop is pressed, the last two stop points are stored in memory. You can use the LAST 0/- key to switch between the last two stop points.

29) Play ▷ key

This key is used to start playback. Pressing this key while holding down the REC key will start recording.

30) REC ◉ key

This key (in combination with the Play key) is used to start recording. It flashes when the DR8 is in record-ready mode (TRACK REC keys have been selected) and lights up while recording is in progress.



31) Phones LEVEL

This control adjusts the headphone volume level.

32) PHONES connection

A stereo pair of headphones can be connected to this 1/4 inch stereo phone jack.

33) THRU MIX key

This key allows you to process eight external input sources through the DR8's internal digital mixer whilst simultaneously mixing signals coming from disk. See "Selecting THRU MIX" on page 53.

34) REHEARSAL key

This key turns the rehearsal function on and off. Rehearsal allows you to practice punch-ins and -outs. During a rehearsal, the monitor will switch to source at the punch-in point, but nothing will be recorded. See "Rehearsal" on page 43.

35) MIX(MIXER) key

This key allows you to configure the mixer — set the level, pan and auxiliary send levels for each channel. See "Mixer" on page 53.

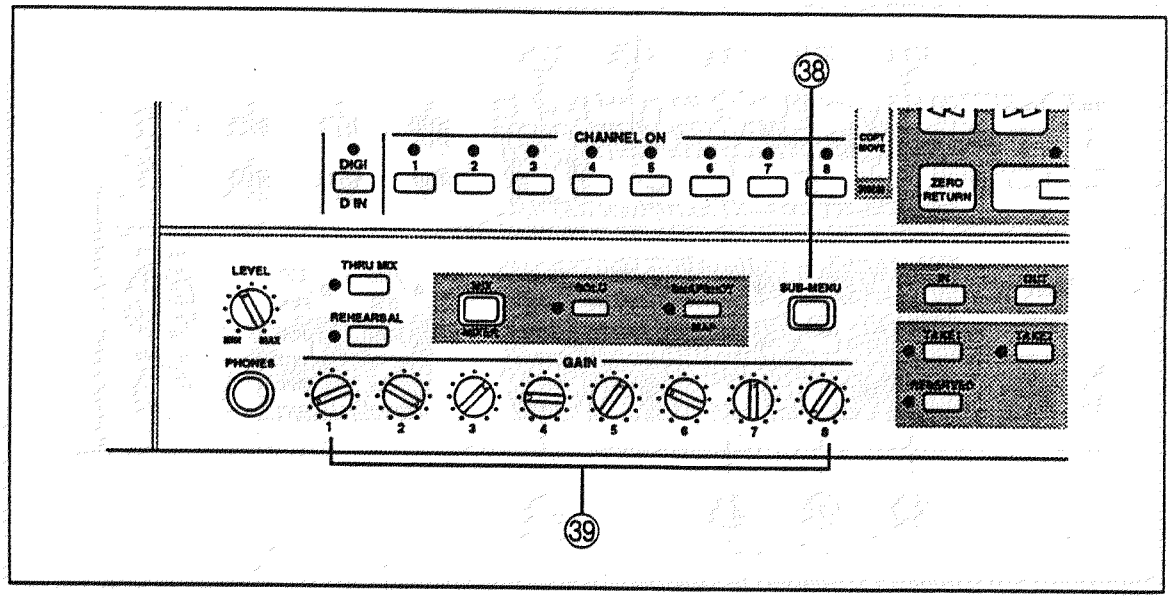
Set global mixer parameters such as the master level, auxiliary send types, and metering parameters with the MIX(MIXER) sub-menu function. See "System Settings" on page 58.

36) SOLO key

This key allows you to isolate individual channels. Pressing one of the CHANNEL ON keys will switch off all other tracks, so that you may listen to the selected track in isolation. You can select more than one track at a time. See "Solo Function" on page 64.

37) SNAPSHOT(MAP) key

This key allows you to store a mix as a 'snapshot'. Once stored, this key is used to recall snapshot mixes. See "Snapshot Settings" on page 61.



38) SUB-MENU key

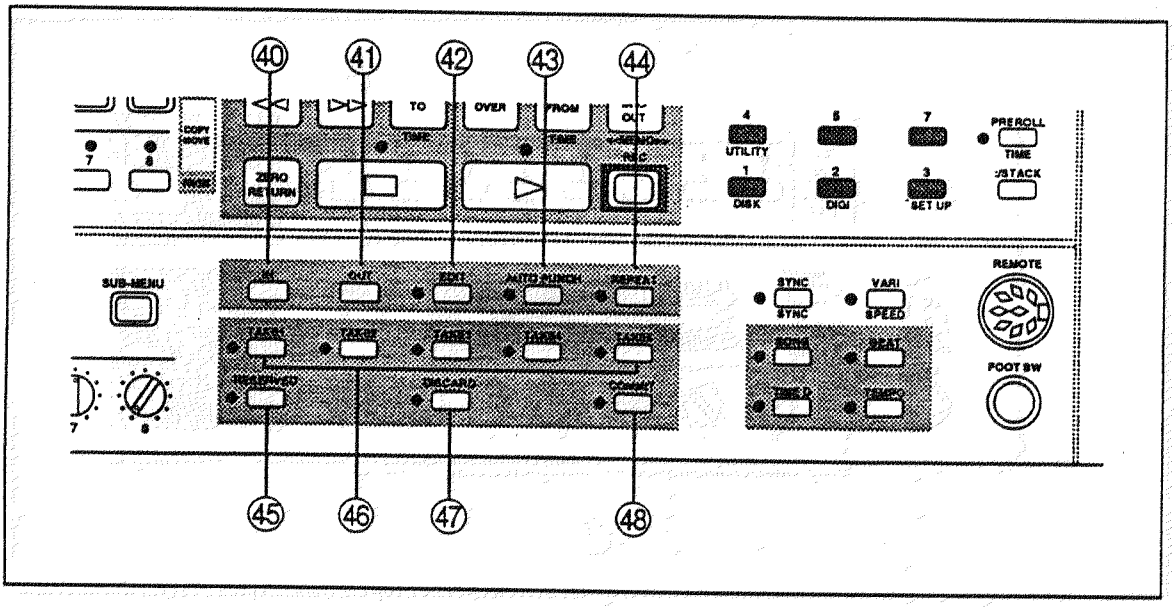
This key is used to select sub-menu functions. Many of the keys have sub-menu functions (indicated in amber, usually beneath the key).

To select a sub-menu function, press the SUB-MENU key (the indicator in the key will flash and the text `SUB-MENU` will appear on the display), then press the desired key. While the DR8 is in Sub-Menu mode, the amber "**S-M**" indicator will be lit on the display.

39) GAIN controls

These controls allow you to set the level of the eight analog inputs on the rear panel.

> **Note:** *The settings of these controls are not stored as part of a mixer snapshot. See "Storing a Snapshot" on page 61.*



40) IN key

This key sets the DR8 to the "in" point. To store an "in" point, first press the STORE/ENT key (this marks the time) and then press the IN key.

41) OUT key

This key sets the DR8 to the "out" point. To store an "out" point, first press the STORE/ENT key and then press the OUT key.

42) EDIT key

This key is used to select the edit functions. See "Editing" on page 77.

43) AUTO PUNCH key

This key is used to automatically control recording punch-in and punch-out. See "Auto Punch-In/Out" on page 42.

44) REPEAT key

This key is used to repeat playback. When this key is on, the part between the "in" point and the "out" point will be played back repeatedly. See "Repeat" on page 50.

45) RESERVED key

This key assigns a recording or edit to one of the TAKE keys.

46) TAKE1 to TAKE5 keys

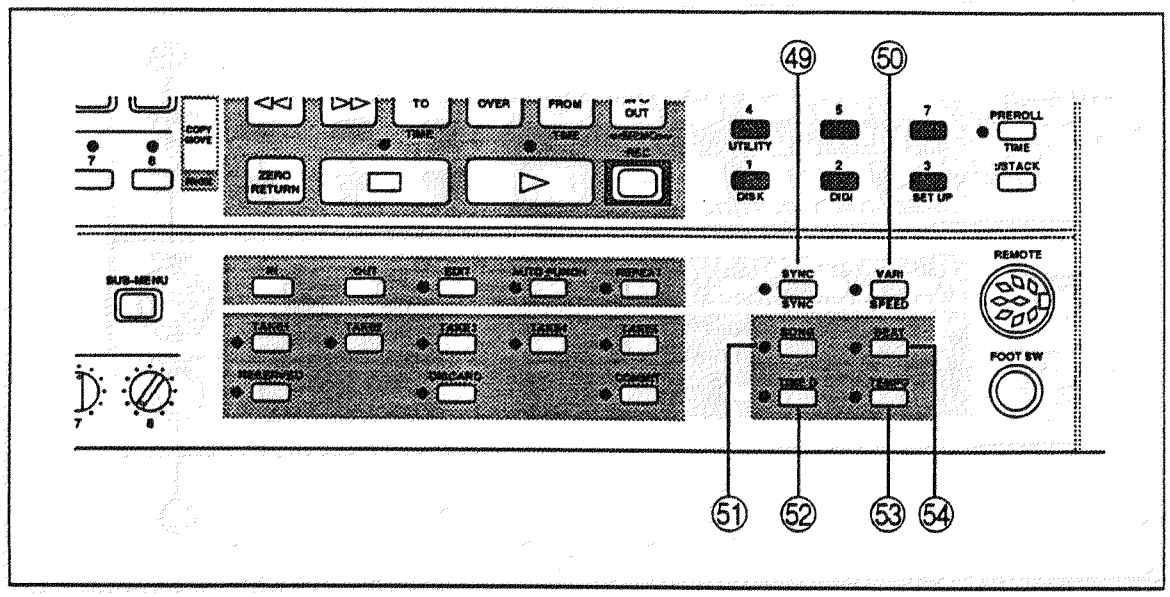
These keys are used to keep the last 5 recordings. See "Take Functions" on page 65.

47) DISCARD key

This key allows you to delete the contents of one of the TAKE keys.

48) COMMIT key

This key saves the "perfect" take to the hard disk tracks.



49) SYNC(SYNC) key

This key is used to activate synchronization with an external device. Up to seven DR8s can be synchronized using Akai AL-X50 cables. The optional IB-802T SMPTE reader/generator board is required for SMPTE synchronized operation and the optional IB-803M MIDI interface board is required for MIDI.

Select the type of external device to sync to with the SYNC(SYNC) sub-menu function. See "SMPTE/EBU Synchronization" on page 104 and "MIDI Synchronization" on page 107.

50) VARI(SPEED) key

This key switches on the varispeed function for playback. See "Varispeed" on page 52.

The amount of varispeed is set using the VARI(SPEED) sub-menu function.

51) SONG key

This key switches the display to BBC mode: Bar, Beat, Clock. This mode is mainly used when the DR8 is synchronized to a MIDI Clock (MTC) signal with the optional IB-803M MIDI interface board. See "Song Mode" on page 110.

52) TIME D key

This key is used to switch to normal time display (hours, minutes, seconds, frames) when the DR8 is in BBC mode.

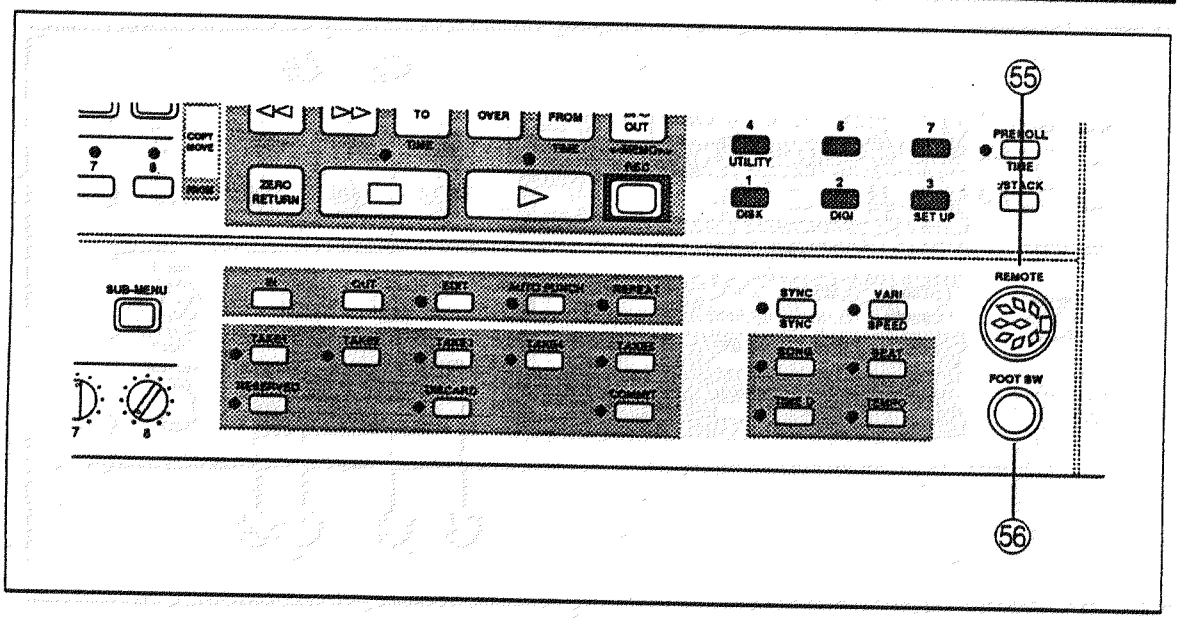
53) TEMPO key

This key is used to set the tempo when the DR8 is in BBC mode.

You may also use this key to input tempo changes. When an external sequencer is slaved to the DR8, it will be able to follow tempo changes.

54) BEAT key

This key is used to set the time signature when the DR8 is in BBC mode.



55) REMOTE connection

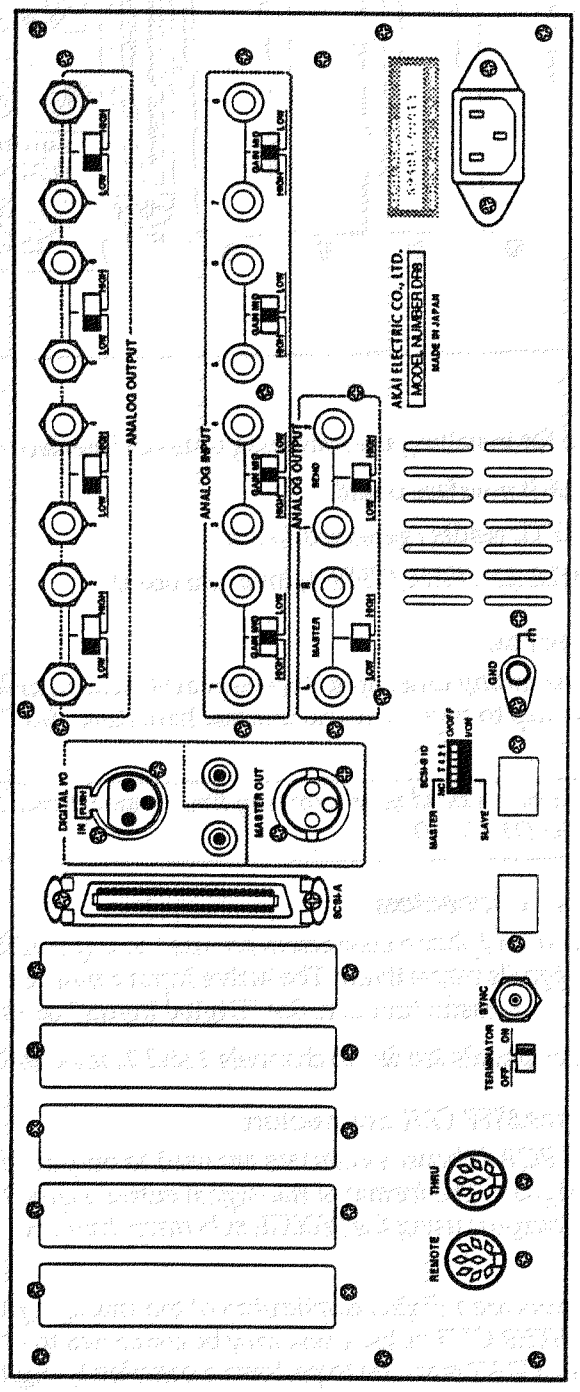
This connection is used for connecting the optional mixing tab or remote controller.

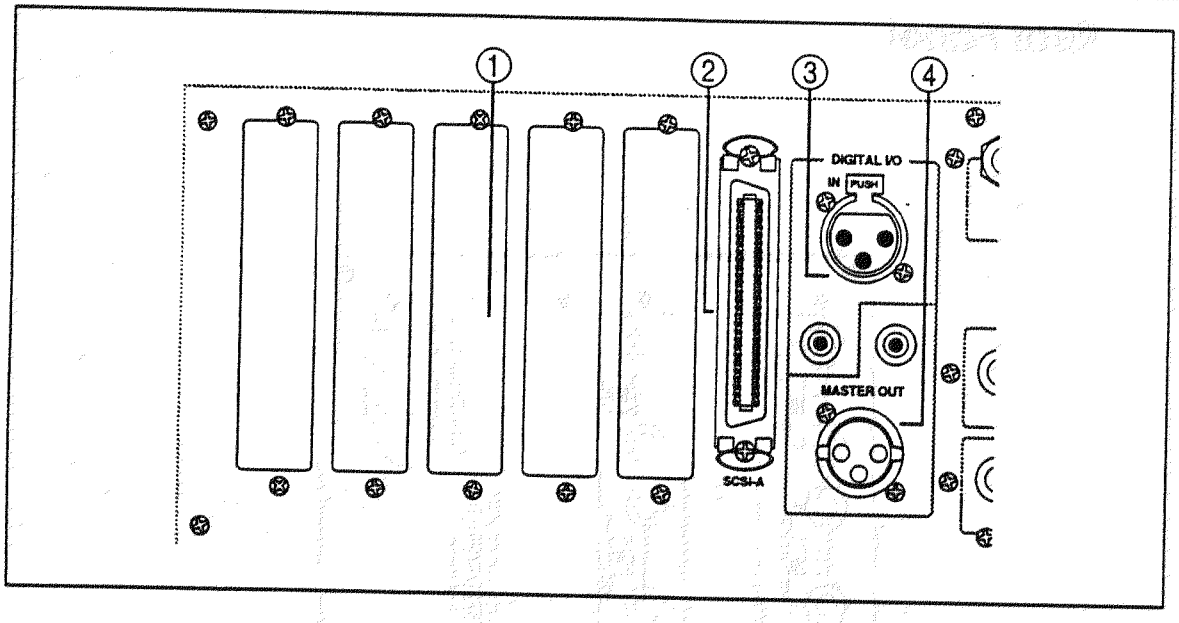
> **Note:** *Use only AKAI AL-X50 remote cables for REMOTE connections. The remote connector is not functional on the DR8 V.1.0.*

56) FOOT SW connection

A normally closed type footswitch can be connected here for punch-in and punch-out operation.

Rear Panel


ANALOG OUTPUT
ANALOG INPUT
ANALOG OUTPUT
AKAI ELECTRIC CO., LTD.
MODEL NUMBER DR8
MADE IN JAPAN
DIGITAL I/O
IN
MASTER OUT
SCSI-A
MASTER
SLAVE
GND
SYNC
TERMINATION
OFF
ON
THRU
REMOTE



1) Option slots

These slots are for installing the following optional interface cards:

- IB-801S SCSI-B interface board
- IB-802T SMPTE reader/generator board
- IB-803M MIDI (IN/OUT/THRU) interface board

2) SCSI-A connection

For increased recording time, up to six external SCSI hard disks can be connected to this connection (up to seven with no internal hard disk). See "Hard Disks" on page 89.

> **Note:** *The utilities to extend your recording time on an external hard drive are not functional on the DR8 V.1.0.*

3) DIGITAL I/O - IN connectors

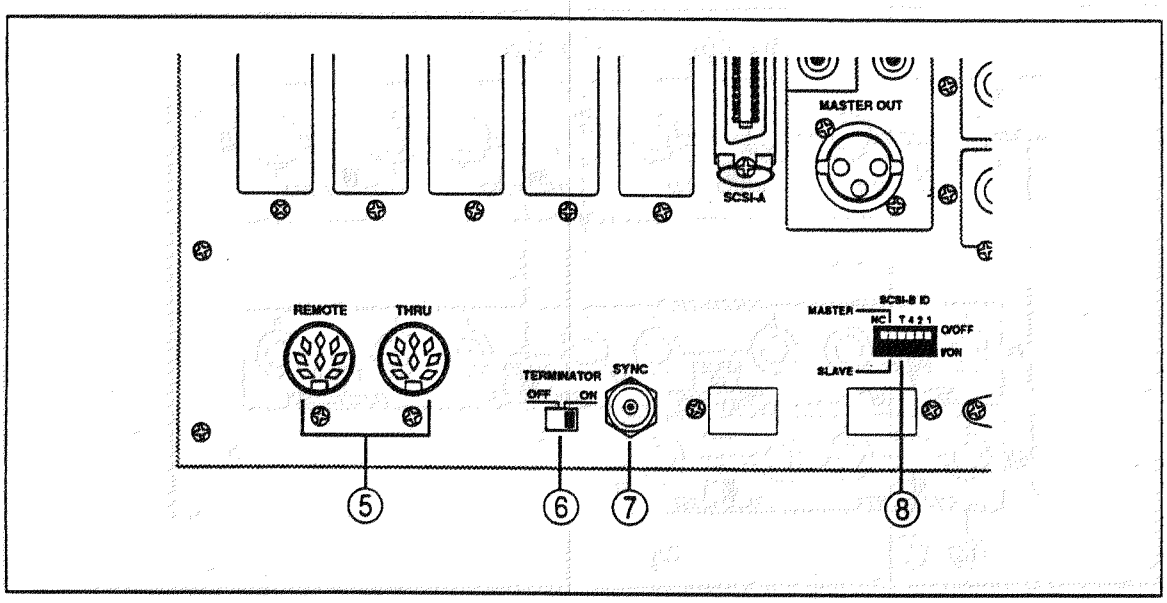
These XLR and RCA/phono connectors are used to input AES/EBU and S/PDIF format digital signals respectively. The active input connector is selected using the DIGI(D IN) key sub-menu function. See "Digital Inputs" on page 33.

The digital input signals are fed to channels 1 and 2, selected by the DIGI key.

4) DIGITAL I/O - MASTER OUT connectors

These XLR and RCA/phono connectors are used to output AES/EBU and S/PDIF format digital signals. The format of the digital output signal is set to Type I or Type II digital audio outputs using the 2(DIGI) sub-menu function. See "Digital Outputs" on page 45.

The digital outputs are a digital duplication of the analog signal appearing at the OUTPUT - MASTER OUT jacks. These may be connected to any stereo digital audio recorder such as a DAT machine to perform a completely digital mixdown. You can also use these connections to perform a DAT back-up. See "Backup to DAT" on page 100.



5) REMOTE and THRU connections

These connections are used for connecting and synchronizing other DR8s. Up to seven DR8s can be connected for 56-track operation.

> **Note:** *Use only AKAI AL-X50 remote cables for REMOTE and THRU connections. The remote connector is not functional on the DR8 V.1.0.*

6) TERMINATOR switch

This switch selects 75Ω termination for the SYNC connection. When a video signal is connected, this switch must be set to ON.

7) SYNC connection

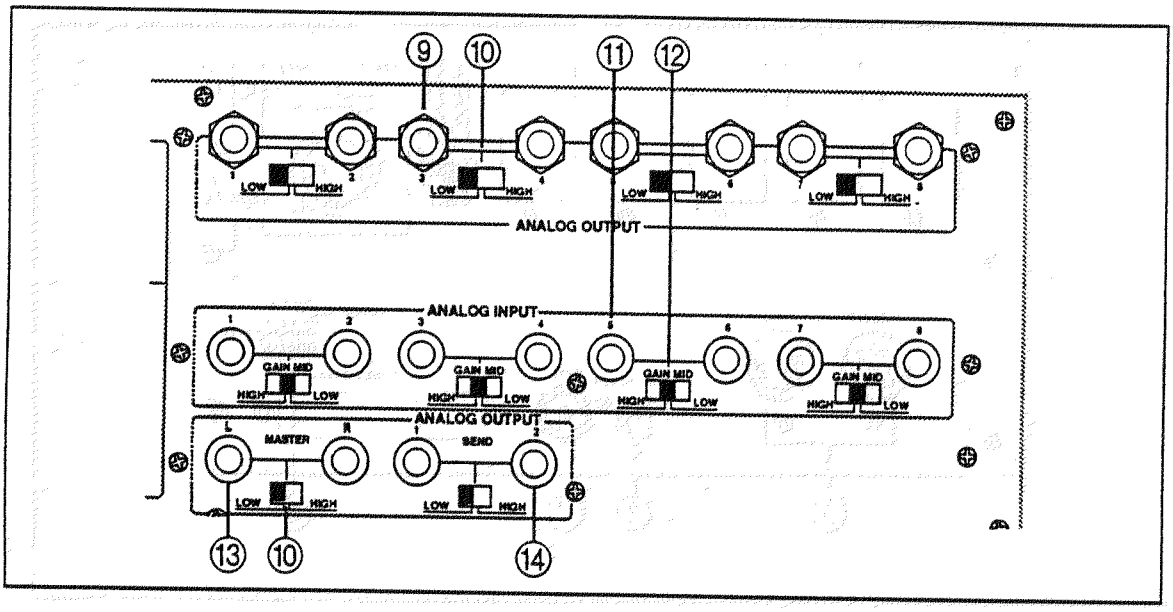
This BNC connector is used to connect the DR8 to an external digital clock source, a composite color video signal, or a black burst signal. Use the 2(DIGI) sub-menu function to select wordclock or a variety of video sync options.

8) SCSI-B ID switches

This DIP switch is for use with the optional IB-801S SCSI-B interface board. It is used to set the DR8's SCSI ID and termination for SCSI-B bus. This bus is for connecting to personal computers.

This switch has no effect on SCSI-A bus.

The switch is also used to select MASTER or SLAVE status for connecting and synchronizing DR8s via the REMOTE and THRU connections.



9) ANALOG OUTPUT (1 ~ 8) connectors

These 1/4 inch stereo phone jacks are used to output analog signals from the DR8. They can be used balanced or unbalanced: Tip = hot, ring = cold, sleeve = ground.

10) Output level switches

These switches allow you to set the DR8 output level. They can be set to LOW (-10 dBu) or HIGH (+4 dBu). Output level switches are provided for each pair of channels: channels 1/2, channels 3/4, channels 5/6, and channels 7/8.

11) ANALOG INPUT (1 ~ 8) connectors

These 1/4 inch stereo phone jacks are used to input analog signals to the DR8. They accept balanced and unbalanced signals: Tip = hot, ring = cold, sleeve = ground.

Unlike conventional multi-track recorders, the eight inputs are not 'hardwired' to their corresponding tracks but can be assigned to any track you like.

12) Input gain switches

These switches allow you to set the DR8 input gain. They can be set to LOW (0 dB), MID (+20 dB), or HIGH (+40 DB). Input gain switches are provided for each pair of channels: channels 1/2, channels 3/4, channels 5/6, and channels 7/8.

13) OUTPUT - MASTER L/R connectors

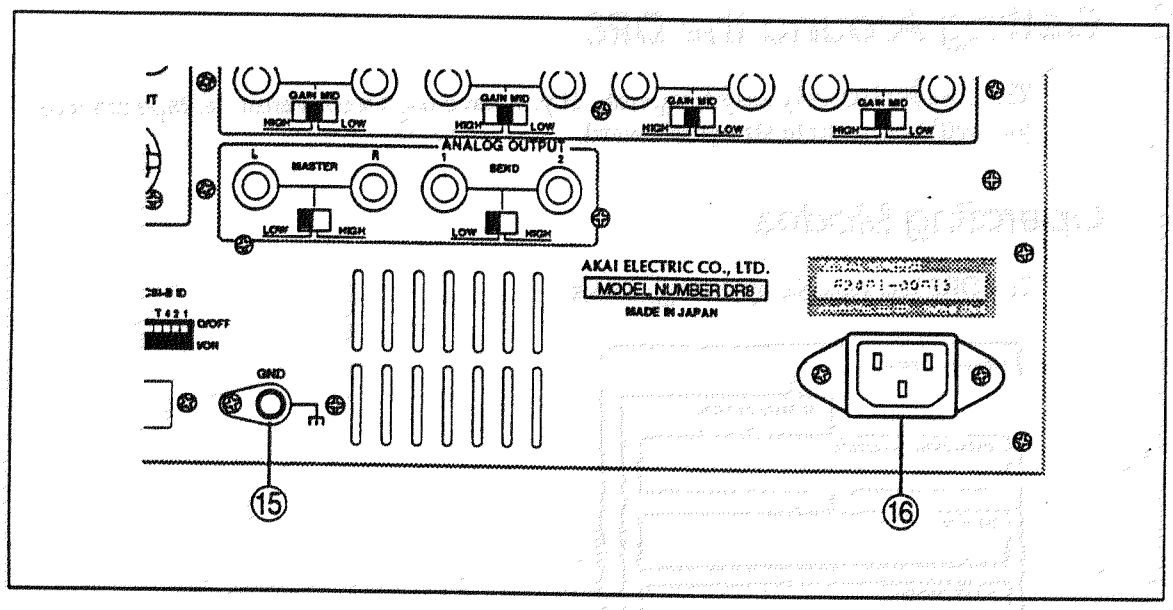
These 1/4 inch stereo phone jacks are used to output an analog stereo mix of the eight tracks. This is an analog duplication of the digital signal appearing at the DIGITAL I/O - MASTER OUT output jacks.

You set the output level for these connectors with the level switch (10). They can be set to LOW (-10 dBu) or HIGH (+4 dBu).

14) OUTPUT - SEND 1/2 connectors

These 1/4 inch stereo phone jacks carry the two effects or auxiliary sends.

You set the output gain for these connectors with the level switch (10). They can be set to LOW (-10 dBu) or HIGH (+4 dBu).



15) GROUND

Use this post to connect the DR8 to earth ground in the event of ground loops.

16) Power inlet

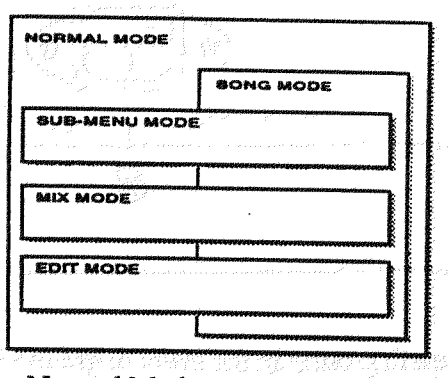
Connect the supplied power cable to this connection. Connect the other end of the power cable to an appropriate AC receptacle.

2 Getting Around the DR8

The DR8 is relatively easy to operate. If you have used a conventional tape recorder, you will find it quite straightforward.

Operating Modes

The DR8 has various operating modes:

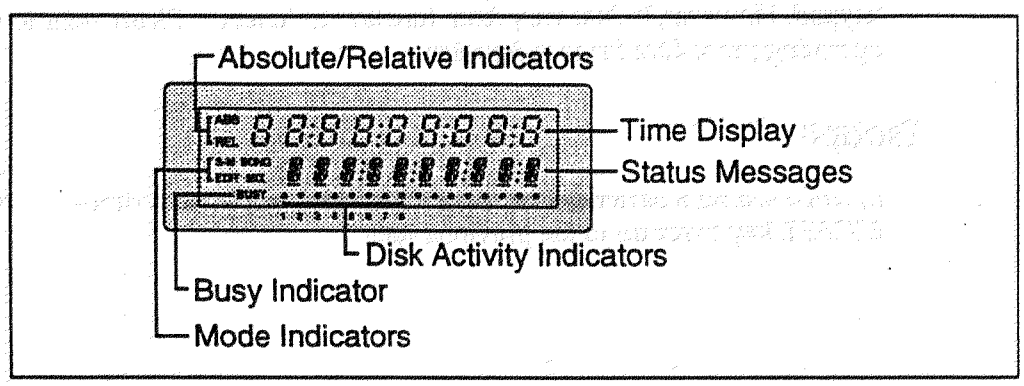


- Normal Mode
  Used for normal recording and playback similar to a conventional tape recorder.
- Sub-Menu Mode
  Used for various settings.
- Mix Mode
  Used to mix the track and channel levels.
- Edit Mode
  Used for various editing operations such as copy and move.
- Song Mode
  Used for setting MIDI Sync and BBC indication.

Operation

Display

The custom FLD (Fluorescent Light Display) shows recording time information and messages indicating the system status.



The top row displays either absolute or relative time. The "**ABS**" and "**REL**" indicators quickly show which display time is active. In Song Mode, the display shows bars, beats and clocks.

Absolute/Relative time

BBC - Song Mode time

The bottom row displays status, sub-menu, and error messages.

There are indicators for each of the following modes, "**S-M**" (Sub-Menu), "**MIX**" (Mix), "**EDIT**" (Edit), and "**SONG**" (Song). Normal mode does not have an indicator.

There is also a "**BUSY**" indicator, showing disk activity, and 8 track data indicators, which show if there is data recorded on a track at the current position.

Sub Menus

Many of the DR8 keys provide two functions. A main function and a *sub-menu* function. In most cases, the main function of such a key is printed above it, and the sub-menu function is printed below it in an amber typeface. Some sub-menu keys provide access to functions, some to variable parameters.

To access a sub-menu function, first press the SUB-MENU key, then while indicator in the key is flashing, press the respective key.

Cursor

The DR8 provides a cursor to step through the items in some of the sub-menu

functions. Rotate the outer SHUTTLE control of the JOG/SHUTTLE control clockwise to move to the right sub-menu parameter. Rotate the SHUTTLE counter-clockwise to move to the left sub-menu parameter.

Setting Parameters

Most parameters can be set using the JOG/SHUTTLE control or the numeric keypad. However, it does vary from function to function. Please refer to the operating procedure for each function.

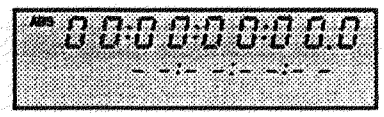
Escape

If, while setting a parameter or using a function, you want to cancel it, press the ESCAPE key to return to the previous state.

Entering Time Values

To locate to any point, set the "in" point, "out" point, direct locate point, stack locate point, etc., you must display the desired time on the display. The desired time can be entered as follows:

1) **Press the LOCATE key.**
You will see a display similar to the following:



2) **Use the numeric keypad to enter the desired time.**
Time values should be entered from left to right. For example, to enter the time 15 minutes 32 seconds 20 frames, press these number keys in the following order: 1, 5, 3, 2, 2, 0. - -:1 5:3 2:2 0 will appear on the display.

> **Note:** *If you enter a time value that is greater than the possible range, the correct position will be calculated. For example, if you enter 78 seconds, the DR8 will locate to 1:18.*

If you make a mistake while entering the time, press the RESET key, then re-enter the time.

Press the ESCAPE key to cancel the locate function.

3) **Press the LOCATE key.**
The DR8 will display the specified time.

> **Note:** *The DR8 will actually locate to the specified time. If you want to return to the previous point, press the LAST 0/– key.*

Refer to the "Locate Functions" on page 69 for further details.

Of course, you can also use the Play ▷, Stop □, Fast Forward ⏩, and Rewind ⏪ keys, or the JOG/SHUTTLE control to enter a time on the display.

Specifying the "in" Point and "out" Point

The "in" point and "out" point values are used for auto punch-in/out recording and editing.

To set the "in" or "out" point:

1) **Display the desired time on the display.**
Select a location for the "in" or "out" point by using the Fast Forward ⏩ or Rewind ⏪ keys or by rotating the JOG/SHUTTLE control.

> **Note:** *In order to locate with the JOG/SHUTTLE control, the JOG ON key must be pressed on. See "JOG ON key" on page 10.*

2) **Press the STORE/ENT key.**
The message MEMORY will appear on the status line of the display and the time display will flash.

3) **Press the IN key or OUT key as required.**
The point will be stored. The time display will stop flashing. "IN" or "OUT" respectively will momentarily flash on the display.

4) **Confirm the stored locations.**
Press the IN key to set the DR8 to the "in" point.

Press the OUT key to select the "out" point.

> Note: *Certain operations, such as recording or Edit Mode erase, automatically update the "in" or "out" points.*

Using the <<MEMO>> function

The DR8 can store and recall up to nine sets of "in" and "out" points.

Storing a set of "in" and "out" points:

1) **Set the "in" and "out" points**
See "Specifying the "in" Point and "out" Point" on page 27.

2) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

3) **Press the IN->OUT(<<MEMO>>) key.**
The message <<MEMO>> will appear on the display.

4) **Press the STORE/ENT key.**
The message <MEMO SET> will appear on the display.

5) **Press a numeric key (1 ~ 9) to store the set of "in" and "out" points.**
The message <MEMO SET> will flash on the display and the set of points stored.

Recalling a set of "in" and "out" points:

6) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

7) **Press the IN->OUT(<<MEMO>>) key.**
The message <<MEMO>> will appear on the display.

8) **Press a numeric key (1 ~ 9) to store the set of "in" and "out" points.**
The message <<MEMO>> will flash on the display and the set of points loaded.

3 Setting Up the DR8

Locating the DR8

The DR8 should be located on a strong, level surface, with plenty of room for ventilation. If you rack mount the DR8, leave at least 1U of free space above and below it.

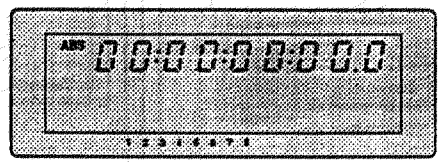
Connecting The Power

Warning: *Before connecting to an AC receptacle, make sure that the mains voltage in your area matches that printed on the DR8 rear panel.*

Connect the supplied power cable to the power inlet on the rear panel of the DR8. Connect the other end of the power cable to an appropriate AC receptacle.

Power On/Off

To power on the DR8, push the POWER switch to its ON position. The DR8 takes approxiametely 10 seconds to warm up before it can be used. During this time it checks the status of any disk drives, and its version number is shown on the display. Once the DR8 is ready for use, the following will appear on the display:



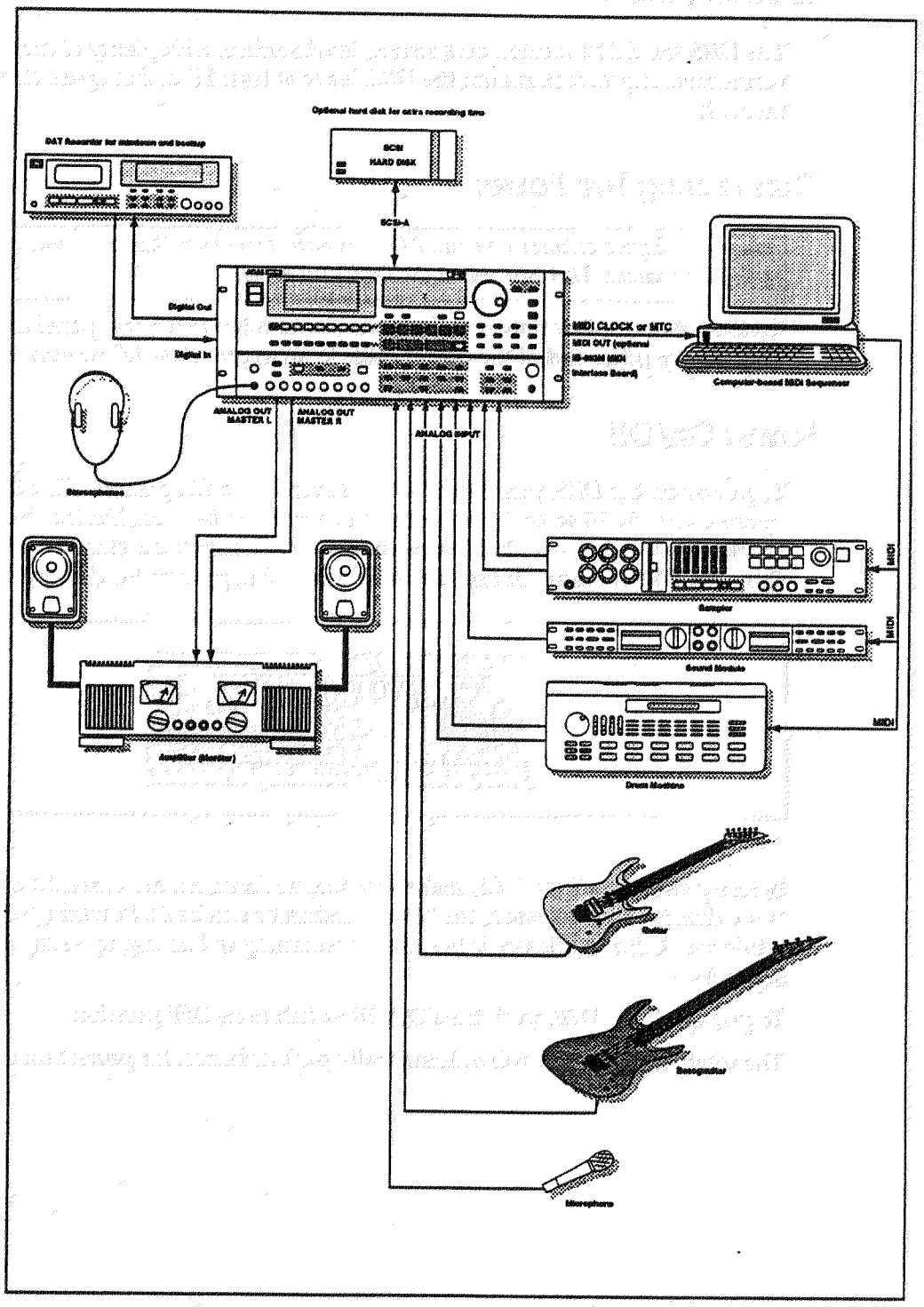
Before powering off the DR8, make sure that no functions are currently in progress. If the disk is being accessed, the "**BUSY**" indicator will be lit. Powering off the unit while the "**BUSY**" indicator is lit - during recording or backing up - may destroy some data.

To power off the DR8, push the POWER switch to its OFF position.

The internal disk drive will automatically park its heads, for protection in transit.

Typical DR8 Setup

The following diagram shows the DR8 in a typical recording setup:



4 Recording

This chapter describes how to record using the DR8.

Sampling Frequency

It is important that you set the sampling frequency before recording. If it is changed after some material has been recorded, that material will playback at the wrong pitch.

The DR8 can record at any one of the three common digital audio sampling frequencies: 32 kHz, 44.1 kHz, and 48 kHz. It can also record at 44.056 kHz for NTSC video synchronization.

The deciding factors in your choice of sampling frequency are: application, required audio bandwidth, and available hard disk space. Some information about sampling frequency, applications, and audio bandwidth are provided below. Also see "Hard Disks" on page 89.

If you intend to mixdown or backup to DAT, refer to the operating manual that came with your DAT to see which sampling frequencies it can record at via its digital inputs.

48 kHz

This frequency is supported by most professional digital audio equipment and provides an audio bandwidth of about 22 kHz. Consumer type DAT and DCC recorders typically record at this frequency when their analog inputs are used. Use this frequency if you want the highest audio bandwidth.

44.1 kHz

This frequency is supported by most professional digital audio equipment and provides an audio bandwidth of about 20 kHz. CDs and prerecorded DCC tapes and MiniDiscs (MD) use this frequency. Professional recording studios that utilize digital equipment also typically use it. If your DR8 material is destined for distribution on CD, then it's best to use this frequency.

32 kHz

This frequency is widely used for digital broadcast applications where a 15 kHz audio bandwidth, about that of FM radio, is deemed acceptable. It is also used for some DSB (Digital Satellite Broadcasting) applications. It offers the lowest audio bandwidth, but the maximum recording time. It maybe useful for projects where recording time takes precedence over audio bandwidth.

44.056 kHZ

This frequency is used when the DR8 is synchronized to 59.94 Hz NTSC color video. Video post-production facilities and broadcasters working with the NTSC standard would be typical users of this frequency.

Selecting the Sampling Frequency

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 2(DIGI) key - numeric keypad.**
The message DIGI OUT will appear on the display.

3) **Use the JOG/SHUTTLE control to select the sampling rate option.**
The outer SHUTTLE control steps through the options one at a time. The message SMPL RATE will appear on the display.

4) **Press the STORE/ENT key to select this option.**

5) **Use the JOG/SHUTTLE control to select a sampling frequency.**
The following sampling frequencies are available:

Sampling Frequency	Display
48.0 kHz	FS 48KHZ
44.1 kHz	FS 44.1KHZ
32.0 kHz	FS 32KHZ
44.056 kHz	FS 44.056K

6) **Press the STORE/ENT key.**
The new sampling frequency will be selected.

> **Warning:** *You cannot use a mixture of sampling frequencies for a single project. If you attempt to combine different sampling frequencies, material recorded at one rate will playback at the wrong pitch at another rate.*

Input Source

The DR8 can record from its eight analog inputs, the stereo (two-channel) digital input, or the internal two-channel bus signal. It can record from a mixture of the analog inputs and the digital inputs simultaneously although you are limited to a total of eight tracks.

Analog Inputs

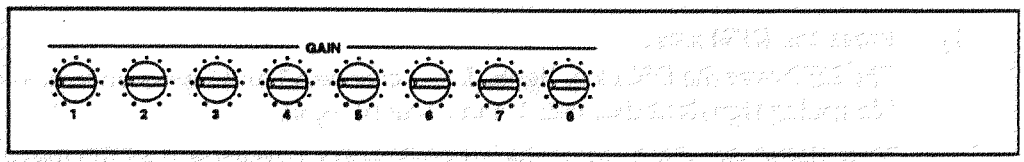
The DR8 has eight analog input connectors on its rear panel. These connectors use 1/4 inch stereo phone jacks. They accept balanced and unbalanced signals: Tip = hot, ring = cold, sleeve = ground.

Setting the INPUT Gain Switches

Each pair of the analog inputs (channels 1/2, 3/4, 5/6, and 7/8) has a HIGH/MID/LOW GAIN switch. Set the gain switches to match the level of the incoming signal. For a low signal level input such as a microphone, set the switch to the HIGH position. Set the switch to the MID position for consumer audio equipment (-10 dBu) and the LOW position for professional equipment (+4 dBu).

Setting the GAIN Controls

The front panel GAIN controls allow you to adjust the gain (level) of each analog input channel in the range of -10 dB to +22 dB. When the controls are at the 9 o'clock position, the gain is 0 dB.



Turn the GAIN controls clockwise to set the channel levels. Adjust the level to get the hottest possible signal without causing the 0 dB segment of the peak-hold LED bargraph to light.

Note: *The peak-hold meters are after the A/D converters in the signal path. When the amber 0 dB (Peak) segment lights, it indicates the level is too high and digital distortion or clipping has resulted. You should adjust the GAIN levels so this does not occur.*

The meters should be set to "PRE" (pre-mixer monitoring) in the Sub-Menu "MIXER" functions. *See "Selecting Pre- or Post- Metering" on page 58.*

When recording vocals or acoustic instruments, it is usually a good idea to have a compressor inserted in the signal path to avoid the distortion that can result due to sudden increases in level.

Digital Inputs

The DR8 has two digital input connectors on its rear panel: an XLR connector and an RCA/phono connector used to input AES/EBU and S/PDIF format digital signals.

When you record from a digital source, such as CD, DAT, DCC, or MD, you cannot to adjust the signal level with the front panel GAIN controls. Most digital audio equipment offer no control over their digital signal output. This should not present any problem — usable digital audio will have a reasonable signal level.

There is some professional digital audio equipment, for example Akai's DD1500, that offers some degree of digital level control.

Sampling Frequency

To record via the digital inputs, the DR8 must be set to the same sampling frequency as that used by the incoming digital signal. This is because the DR8 has to synchronize with the incoming signal (word sync). If you are recording from a CD, prerecorded DCC, or MD, this will be 44.1kHz. If you are recording from a DAT that was recorded via analog inputs, this will be 48kHz.

See "Selecting the Sampling Frequency" on page 32.

Digital Audio Formats

There are two industry-standard digital audio formats. Type 1 is usually referred to as AES/EBU format. Type 2 is also known as S/PDIF format. Both of the connectors (XLR and RCA/phono) on the rear panel of the DR8 can receive either Type 1 or Type 2 signals as input.

You simply select the connector you are going to use.

To switch to digital inputs:

1) **Press the DIGI key.**
The LED over the DIGI key lights. Input channels 1 and 2 are switched to digital. No analog signals at channels 1 and 2 will be input.

If no digital signal is input at the currently active connector, the LED flashes and the message `PLL UNLOCK` will flash on the display.

To select the active digital connector:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text `SUB-MENU` will appear on the display.

2) **Press the DIGI(D IN) key.**
The display will show the currently active connector.

3) **Use the JOG/SHUTTLE control to select the digital connector.**

Connector	Display
XLR	`DIGI.n XLR`
RCA/phono	`DIGI.n RCA`

4) **Press the STORE/ENT key.**
The new connector will be selected.

Selecting the Input Channels

The input channels are initially assigned when the DR8 is powered on. The default assigns channels 1 to 8 as input hard disk tracks 1 to 8 respectively. You can reassign the tracks to any input channel or to the internal bus channels.

To initialize the channel assignment:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the ALL key.**
The message text CLEAR ?? will appear on the display.

3) **Press the STORE/ENT key.**
The input assignments will be reset to the default. The DR8 will return to the previous mode.

To assign the input channels:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press one of the TRACK REC(INPUT SELECT) keys.**
The selected TRACK REC key will light up and the display will show the currently selected input source for that track. For example, if you press the first TRACK REC key, the display will show INPUT A-1.

Note: *You can only select one TRACK REC key at a time in this mode.*

3) **Use the JOG/SHUTTLE control to select another input source.**
Select an input source from the following list:

Display	Description
INPUT A-1	Analog inputs 1 ~ 8.
↓	
INPUT A-8	
INPUT D-1	When the DIGI key is ON, channels 1 and 2 are digital.
INPUT D-2	
INPUT BUSL	Left channel of the bus signal.
INPUT BUSR	Right channel of the bus signal.

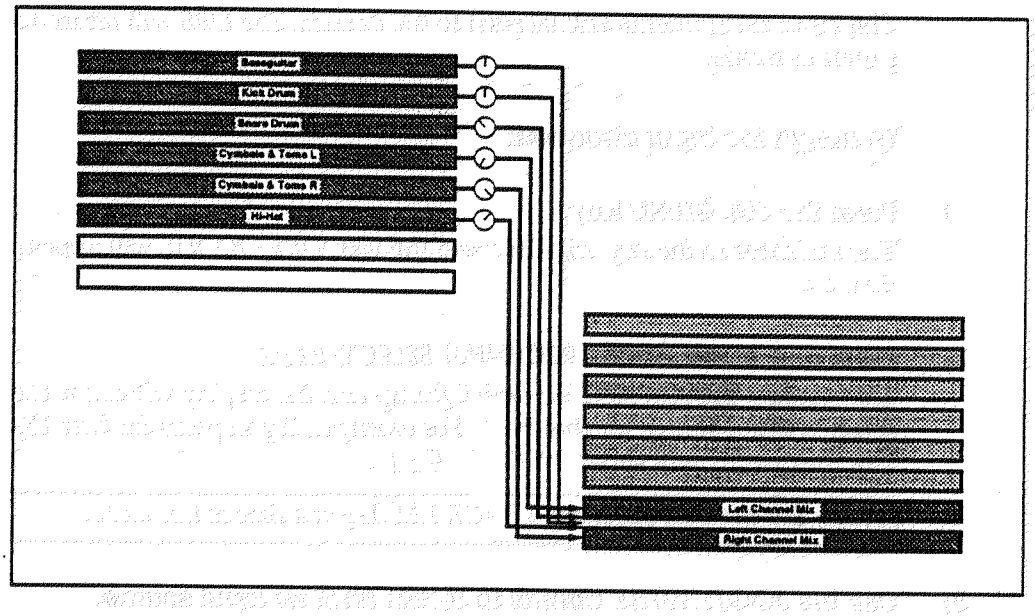
4) Press another TRACK REC(INPUT SELECT) key.
To change the rest of the channel assignments, repeat the above steps.

> **Note:** *If the THRU MIX key is ON, the input signal is routed directly to the output connections, bypassing the hard disk tracks. In order to record the input signal, the THRU MIX key must be OFF.*

Using the BUS function

As well as the rear panel connectors, one of the inputs you can select is the BUSL and BUSR signals. Using these inputs, it is possible to bounce-down six tracks of material on to two stereo tracks. The bounce-down is entirely in the digital domain, allowing you to maintain almost perfect signal quality.

For example, assume you have recorded your rhythm section on tracks 1 to 6 and you now want to make a stereo mix onto tracks 7 (left channel) and 8 (right channel) as in the following diagram:



Set the destination tracks:

1) Press the SUN-MENU key followed by the TRACK REC(INPUT SELECT) key for track 7.

2) Use the JOG/SHUTTLE control to select the left bus signal.
The display will show `INPUT BUSL`.

3) Repeat for track 8.
The display will show `INPUT BUSR`.

Set the source tracks:

1) **Using the Mix Mode functions, set the bus send ON for tracks 1 to 6.**
See "Selecting the Bus Send" on page 56. While you are in Mix Mode, you would also set the level, stereo pan position, and send levels for the source tracks. Also see "Individual Channel Settings" on page 54.

2) **Locate to the beginning of your rhythm tracks and record the bounce-down using the procedures listed in the following sections.**
This allows you to execute a completely digital track mix within the DR8. The tracks you bounce-down can then be recorded over (and subsequently mixed down to another stereo pair) to dramatically increase the effective number of tracks you have available.

Bus Function Notes

Although the bounce-down recording you make can be undone, if you subsequently erase or record over the source tracks, these cannot be retrieved.

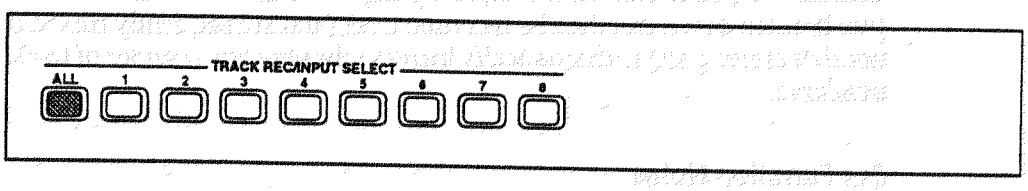
You cannot bounce-down tracks 1 to 8 to a stereo pair — the destination tracks are overwritten, not merged.

Starting & Stopping Recording

Arming Tracks

To arm tracks ready for recording:

1) **Press the respective TRACK REC keys.**
The TRACK REC keys of armed tracks will flash.



To arm all of the tracks for recording:

1) **Press the ALL key.**

Recording

To start recording:

1) **Press the Play ▷ key and REC ● key simultaneously.**
The REC key and the TRACK REC keys of any armed tracks will light up, indicating that recording is in progress.

2) **Press the Stop ■ key to stop recording.**

> **Note:** *The DR8 stores the recording start point ("in" point) and stop point ("out" point). You can subsequently access these two points with the IN and OUT keys. These points are updated each time you make a recording.*

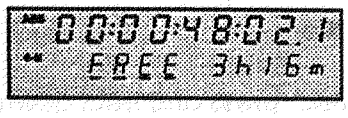
Available Recording Time Display

To check the available recording time:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 1(DISK) key - numeric keypad.**
The message TIME will appear on the display.

3) **Press the STORE/ENT key to select this option.**
The amount of free disk space will be displayed in hours and minutes:



4) **Rotate the JOG/SHUTTLE control to view the total disk space.**
The total time capacity of the available disks will be displayed.

> **Note:** *The value shown will change depending on the selected sampling frequency. See "Selecting the Sampling Frequency" on page 32.*

Punch-In Functions

Manual Punch-In/Out

Manual punch-in/out allows you to punch-in and punch-out during playback.

1) **Set up the DR8 so that it is ready to record.**
Record setup procedures are explained on the preceding pages.

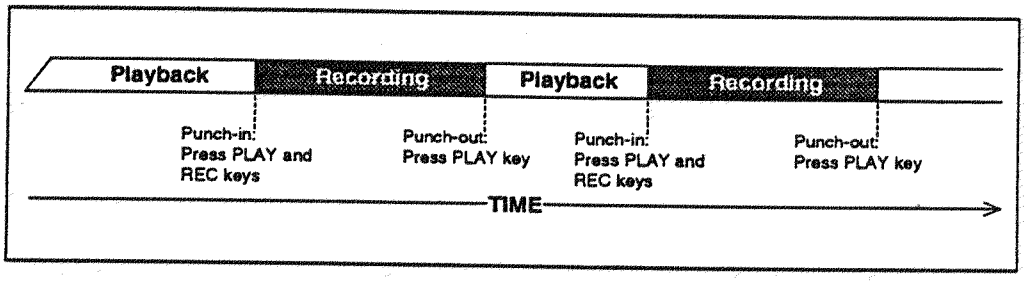
2) **Arm the channel that you want to use for punch-in/out.**
The TRACK REC key of an armed track will flash.

3) **Rewind to a position before the point at which you want to punch-in.**

4) **Press the Play ▷ key to start playback.**

5) **When the desired punch-in point is reached, press and hold down the Play key, then press the REC ● key.**
Punch in will occur as soon as the REC key is pressed.

6) **Press the Play key again to punch out.**
The following diagram shows the procedure for manual punch-in/out:



Manual Punch In/Out Notes

When you punch-in and punch-out, the "in" point and "out" point values are updated automatically. If you are trying a difficult punch-in/out, perform a the manual punch-in/out with the rehearsal function on (see "Rehearsal" on page 43), then confirm the punch-in/out points using the auto punch-in/out function. When you are satisfied, switch off the rehearsal function and perform an auto punch (also see "Auto Punch-In/Out" on page 42).

You can repeat the punch-in and punch-out operations as often as you want. After a punch-out, you should leave an interval before you punch-in again.

When you punch-out, the monitor switches from source to playback, causing a momentary interruption in the monitor output. This does not affect the recording at all.

Footswitch Punch-In/Out

Manual punch-in/out can also be carried out using a footswitch, especially useful if you are playing an instrument and operating the DR8 simultaneously.

1) **Connect a footswitch to the FOOT SW connection on the front panel.**

2) **Set up the DR8 so that it is ready to record.**
Record setup procedures are explained on the preceding pages.

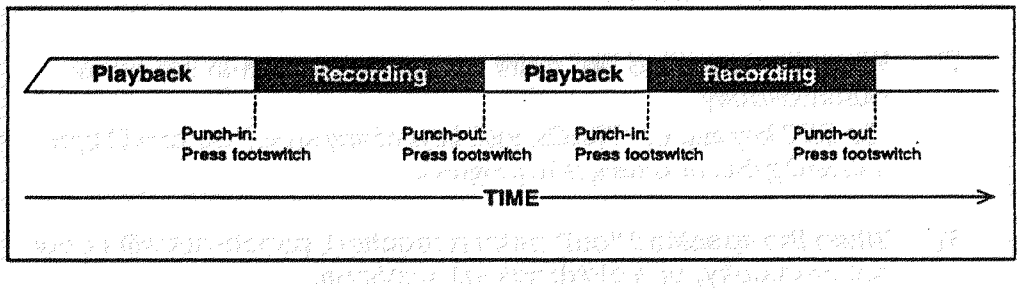
3) **Arm the channel that you want to use for punch-in/out.**
The TRACK REC key of an armed channel will flash.

4) **Rewind to a position before the point at which you want to punch in.**

5) **Press the Play ▷ key or press the footswitch to start playback.**

6) **When the desired punch-in point is reached, press the footswitch.**
Punch-in will occur as soon as you press the footswitch.

7) **Press the footswitch again to punch out.**
The following diagram shows the procedure for footswitch punch-in/out:



Auto Punch-In/Out

Auto punch in/out allows you to automatically punch in and punch out at the specified in and out points. This is useful when you need greater accuracy than that possible using manual punch in/out. It also allows you to repeat a punch in/out until you are satisfied with the result.

1) **Set up the DR8 so that it is ready to record.**
Record setup procedures are explained on the preceding pages.

2) **Arm the channel that you want to use for punch-in/out.**
The TRACK REC key of the selected track(s) will flash.

3) **Set the "in" and "out" points.**
See "Specifying the "in" Point and "out" Point" on page 27.

4) **Press the AUTO PUNCH key.**
The red LED beside the key will flash.

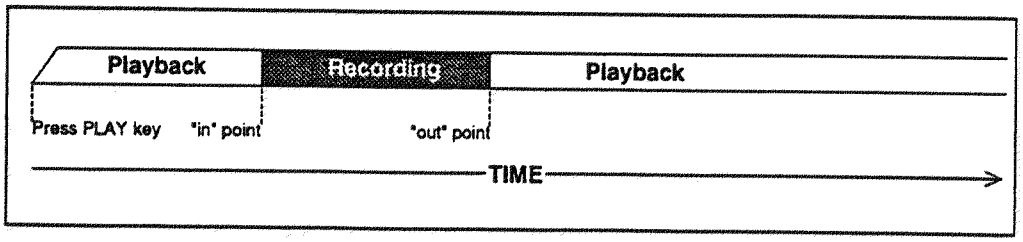
5) **Rewind to a position before the specified "in" point.**

6) **Press the Play ▷ key to start playback.**
The REC key will flash.

7) **When the specified "in" point is reached, punch-in will occur automatically.**
The REC key and the TRACK REC keys of any armed tracks will light up, indicating that recording is in progress.

8) **When the specified "out" point is reached, punch-out will occur automatically, and playback will continue.**
The REC key and the LED beside the AUTO PUNCH key will switch off. The TRACK REC keys of the armed tracks will start flashing again.

9) **Press the Stop □ key to stop playback.**
The following diagram shows the procedure for auto punch in/out:



Auto Punch-In/Out Notes

The auto punch-in/out function is switched off automatically after it has been used.

Make sure that you start playback from a position before the specified "in" point. Otherwise, auto punch-in/out cannot be performed.

Monitoring

During a recording session, you may want to change which signal you are monitoring. Use the CHANNEL ON keys and TRACK REC keys for this purpose. The following table shows monitor operation under various conditions:

Key Selection		Recorder Status and Monitored Signal		
CHANNEL ON	TRACK REC	Stop	Playback	Recording
ON	OFF	Mute	Playback	
OFF	ON	Input Signal		
ON	ON	Input Signal	Playback	Input Signal

Note: *If the channel you are monitoring was set to BUSL or BUSR during Input Select (see "Selecting the Input Channels" on page 35), the source monitor signal of the channel (input signal) will not be output.*

Rehearsal

The rehearsal function allows you to practice a recording before actually recording anything to disk. This is useful when used with automatic punch-in/out for checking punch-in/out points.

To turn the rehearsal function on:

1) **Press the REHEARSAL key.**
The red LED beside the key will flash.

With the rehearsal function on, you start recording as normal. When the specified in point is reached, the monitor signal is switched. However, nothing is actually recorded to disk. When the specified out point is reached, the monitor signal is switched again.

To record for real, switch off the rehearsal function, then start recording as normal.

Recording Undo

If you record some new material over some existing material, and then decide that you preferred the original, this undo function can be used to restore the original. In fact, you can switch between the original and the new during playback for comparison. This is possible because the DR8 always records new material on a different area of the hard disk.

Operation

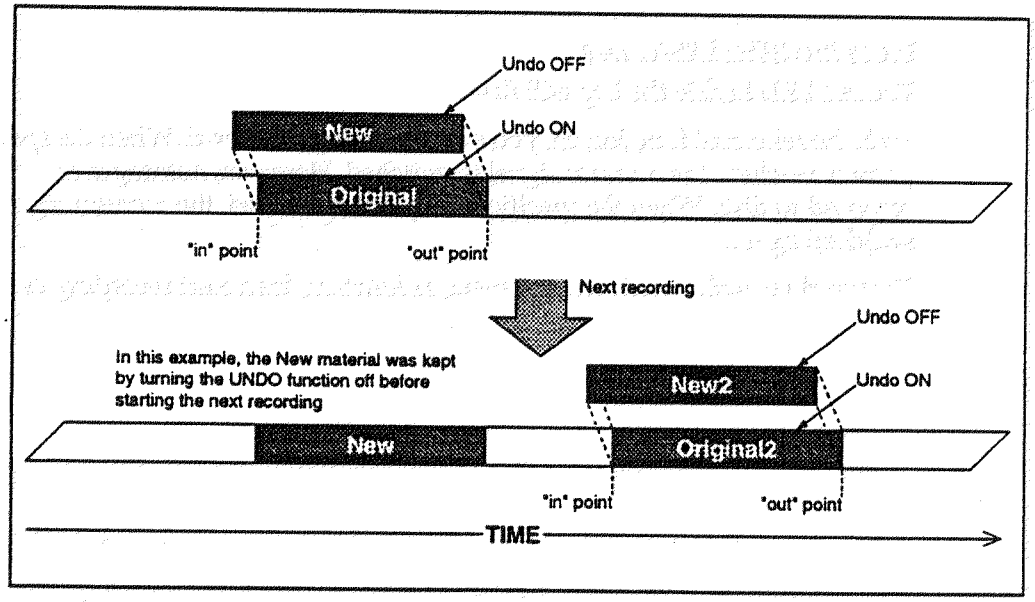
After each recording, the DR8 will play the new material.

1) **To undo a recording, press the UNDO key.**
The indicator in the key will light up. While this indicator is lit, the DR8 will play the material as it was before the recording.

2) **To switch back to the newly recorded material, press the UNDO key again.**
Before starting another recording, you must decide which material you want to keep: the original or the new. Once a new recording is performed, the undo function will apply to that new recording.

Once you have decided, leave the undo function set as required.

The following diagram shows how the recording undo function works:



5 Playback

This chapter describes some functions that apply to playback only.

Outputs

The DR8 has eight analog outputs, two send outputs, and a master stereo output. It also has a digital output which duplicates the signal at the master stereo output.

Analog Outputs

Individual Analog Outputs

The DR8 has eight individual analog output connectors on its rear panel. These connectors are output level-switched and use 1/4 inch stereo phone jacks. They can be used balanced or unbalanced: Tip = hot, ring = cold, sleeve = ground.

Master Stereo and Auxiliary Send Outputs

There are two auxiliary send outputs as well as a master stereo output pair on the rear panel. These connectors are output level-switched and use 1/4 inch stereo phone jacks. They can be used balanced or unbalanced: Tip = hot, ring = cold, sleeve = ground.

Setting the Output Level

The level of the individual analog outputs is switched in pairs (1/2, 3/4, 5/6, and 7/8). The level of each pair of outputs, master and auxiliary send, is also switched. When the switch is set to HIGH, the output level is equivalent to +4 dBu. When the switch is set to LOW, the output level is equivalent to -10 dBu.

	Level Switch	
	HIGH	LOW
Nominal output	+4 dBu	-10 dBu
Max. output	+18 dBu	+4 dBu

0 dBu = 0.775 Vrms

Set the level switches to match the nominal signal level of your mixing console or audio system.

Digital Outputs

The DR8 has two digital output connectors (DIGITAL I/O - MASTER OUT) on its rear panel: an XLR connector and an RCA/phono connector used to output AES/EBU and S/PDIF format digital signals.

Digital Audio Formats

The DR8 can transmit either of the two industry-standard digital audio formats. Type 1 (professional) is usually referred to as AES/EBU format. Type 2 (consumer) is also known as S/PDIF format. Both of the connectors (XLR and RCA/phono) on the rear panel of the DR8 can transmit either Type 1 or Type 2 signals as output.

Selecting the Digital Output Format

You select the digital output format with the following procedure:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 2(DIGI) key - numeric keypad.**
The message DIGI OUT will appear on the display.

3) **Press the STORE/ENT key to select this option.**
The display will show the current output format.

4) **Use the JOG/SHUTTLE control to select an output format.**

Format	Display
AES/EBU — Type 1 (professional)	TYPE 1
S/PDIF — Type 2 (consumer)	TYPE 2

5) **Press the STORE/ENT key.**
The new output format will be stored.

Starting & Stopping Playback

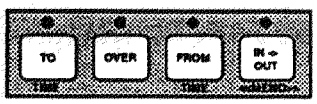
To start playback:

1) **Press the Play ▷ key.**
The Play LED will light and the DR8 will start playback from its current position.

2) **Press the Stop □ key to stop playback.**

Special Play Keys

The DR8 has four special play keys for confirming edit points, punch-in locations, etc. These are the TO(TIME), OVER, FROM(TIME), and IN->OUT(<<MEMO>>) keys:

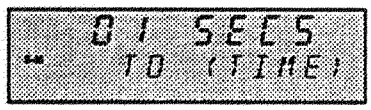


The TO key

Setting the TO time

1) Press the SUB-MENU key.
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) Press the TO(TIME) key.
The "play to" time will appear on the display:



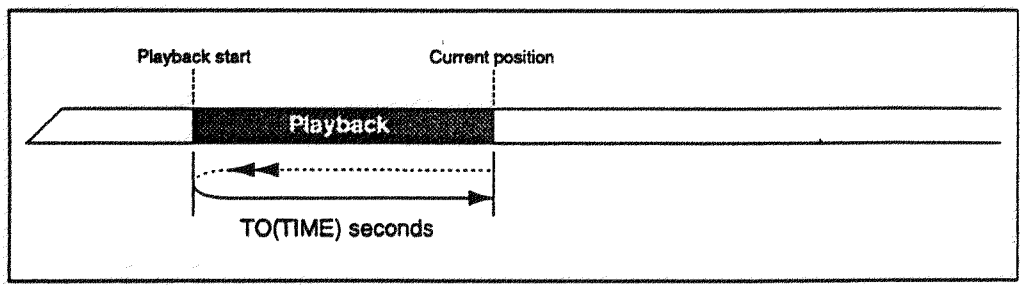
3) Use the JOG/SHUTTLE control, or numeric keypad to specify a time.
The "play to" time can be set from 0 to 59 seconds. The default is one (1) second.

4) Press the STORE/ENT key.
The specified time will be entered.

Operation

1) Press the TO key.
Playback will start the specified TO(TIME) number of seconds before the current position, continue up to that current position, and then stop.

The following diagram shows how the play TO function works:

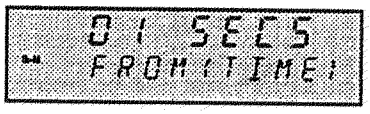


The FROM key

Setting the FROM time

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the FROM(TIME) key.**
The "play from" time will appear on the display:



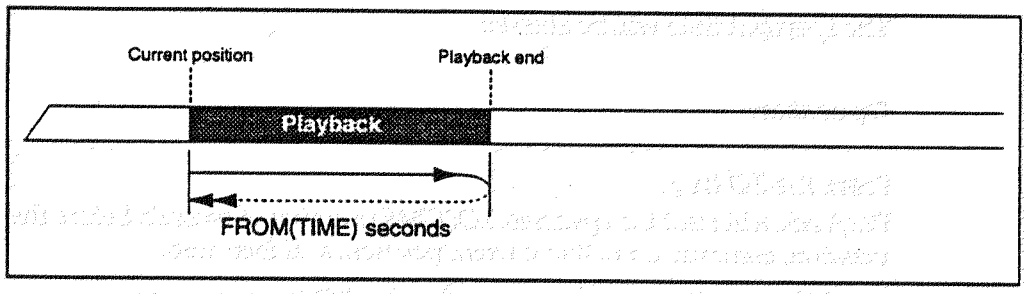
3) **Use the JOG/SHUTTLE control, or numeric keypad to specify a time.**
The "play from" time can be set from 0 to 59 seconds. The default is one (1) second.

4) **Press the STORE/ENT key.**
The specified time will be entered.

Operation

1) **Press the FROM key.**
Playback will start at the current position, continue for the specified FROM(TIME) number of seconds, and then stop and return to the current position.

The following diagram shows how the play FROM function works:



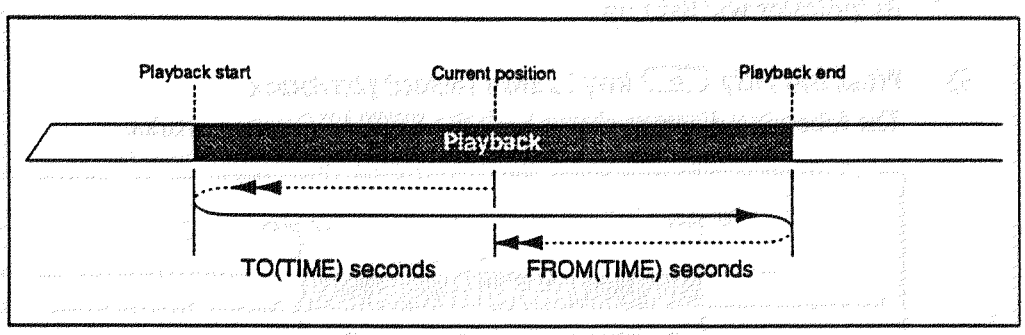
The OVER key

This function uses the TO and FROM times that were set in the two functions described previously. See "Setting the TO time" on page 47 and "Setting the FROM time" on page 48.

Operation

1) **Press the OVER key.**
Playback will start the specified TO(TIME) number of seconds before the current position, continue past current position for the specified FROM(TIME) number of seconds, and then stop and return to the current position.

The following diagram shows how the play OVER function works:



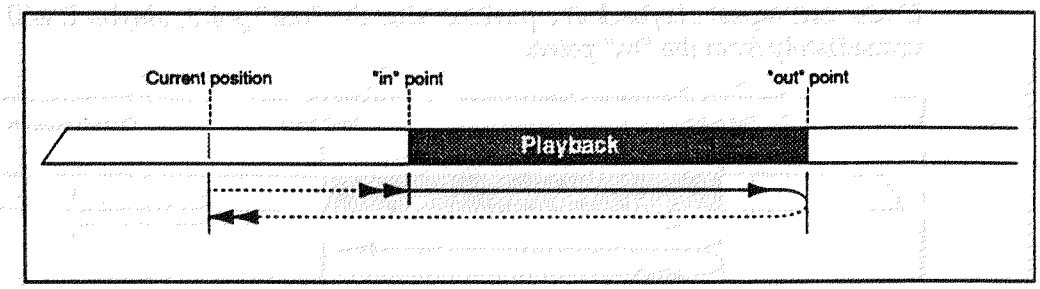
The IN->OUT key

1) **Set the "in" and "out" points.**
See "Specifying the "in" Point and "out" Point" on page 27.

Operation

1) **Press the IN->OUT key.**
Playback will start the marked "in" point, continue to the marked "out" point, and then stop and return to the current position.

The following diagram shows how the play IN->OUT function works:



Repeat

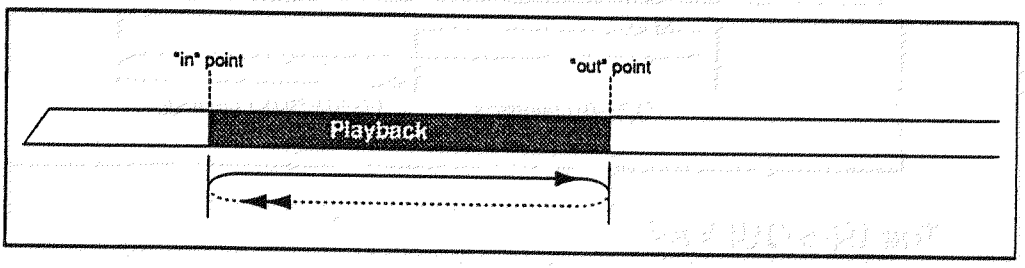
The repeat function allows you to repeatedly play the material that occurs between the "in" point and "out" point. Unlike the repeat function found on tape based recorders, the DR8 does not have to rewind when the "out" point is reached — repeat playback is continuous.

Operation

1) **Set the "in" and "out" points**
See "Specifying the "in" Point and "out" Point" on page 27.

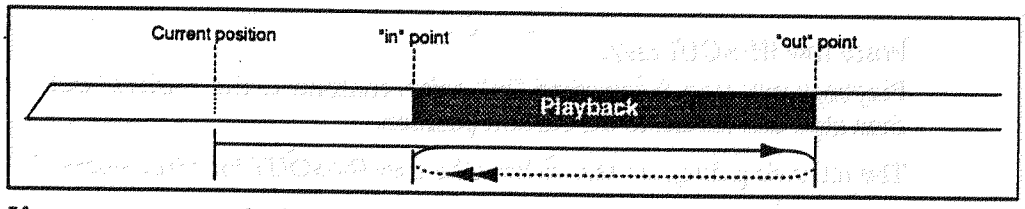
2) **Press the REPEAT key.**
Its indicator will light up.

3) **Press the Play ▷ key to start repeat playback.**
The following diagram shows how the REPEAT function works:

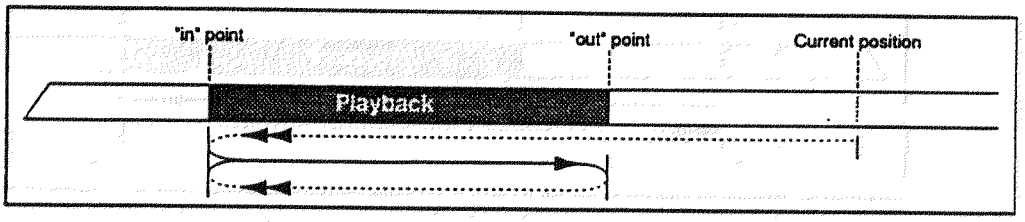


Repeat Playback Notes

If you start repeat playback at a position before the "in" point, or at a position between the "in" point and "out" point, playback will start from the current position, proceed up to the "out" point, then start repeating.



If you start repeat playback at a position after the "out" point, playback will start immediately from the "in" point.



Using Repeat to Punch-in

With repeat switched on, you can loop through a particular part, practicing a punch-in until you are confident. See "Manual Punch-In/Out" on page 40 and "Footswitch Punch-In/Out" on page 41.

Varispeed

The varispeed function allows you to vary the pitch of recorded material during playback.

Setting the Amount of Varispeed

To set the amount of varispeed:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the VARI(SPEED) key.**
You will see a display similar to the following:

3) **Use the JOG/SHUTTLE control to specify the amount of varispeed.**
You adjust the varispeed in steps from -50 through +00 to +50. The approximate range is from -41.3% to +58.3%.

4) **Press the STORE/ENT key.**
The specified value will be set.

Operation

To use varispeed:

1) **Press the VARI key.**
The VARI indicator will light up.
Recorded material will now playback with the specified amount of varispeed.

2) **Press the VARI key again to turn off varispeed.**

6 Mixer

This chapter examines the mixer functions.

Inside the DR8 is a 16-channel digital mixer. There are eight channels from the hard disk tracks plus a further eight channels from the THRU MIX inputs. You can set the mixer parameters for each channel independently.

> **Note:** *Only eight channel inputs are available at any time. The status of the THRU MIX channel ON/OFF determines if the signal routed to these inputs is sent to the hard disk tracks or directly to the outputs. When the THRU MIX channel ON/OFF is ON, eight channel input signals are mixed while eight hard disk tracks are played back. The combined signal is out from the ANALOG OUTPUT - MASTER stereo connectors.*

The mixer also has a snapshot facility. This allows you to store mixer parameters and subsequently assign them to specific times, allowing you to perform automated mixing during playback.

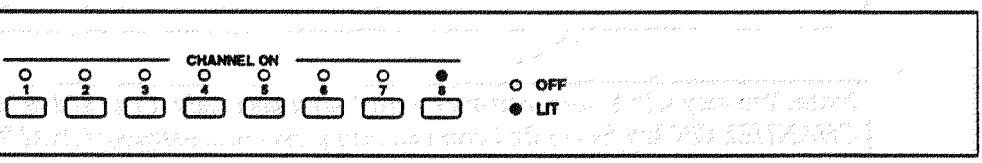
Selecting THRU MIX

When the THRU MIX key is ON, the input signal gets routed directly through to the OUTPUT - MASTER L/R connection. See "Signal Flow" on page 3 and "Block Diagram" on page 123.

1) Press the THRU MIX key

The red LED beside the key lights. Any CHANNEL ON key LED that was lit in the previous mode will turn off.

The level meters now display the THRU MIX signal.



2) Select the THRU MIX channels by pressing the CHANNEL ON keys.

The LEDs light over the selected keys.

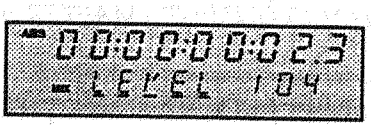
> **Note:** *If you press the THRU MIX key while the DR8 is recording, the input signal gets routed directly to the outputs, effectively cutting off the hard disk tracks. Please be certain that this is what you intend to do.*

Individual Channel Settings

Selecting Mix Mode

You set the level, pan, and auxiliary send levels for each input channel using Mix Mode.

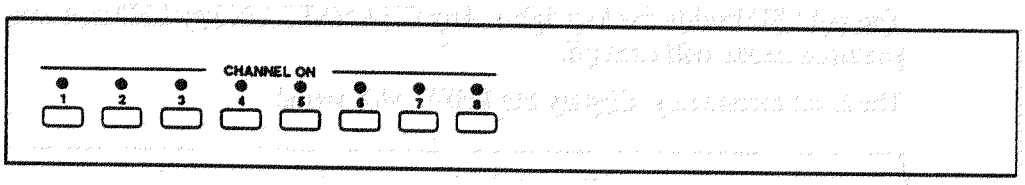
1) **Press the MIX key to access Mix Mode.**
The "LEVEL" function is the first function. You will see a display similar to the following:



Setting the Level

1) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The level data will be underlined: LEVEL 104. See "Cursor" on page 25.

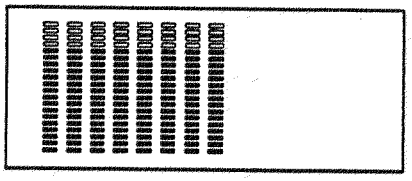
2) **Select the channel(s) you want to modify by pressing the CHANNEL ON keys.**
The LEDs light over the selected keys.



Note: *You may select more than one channel simultaneously. Press and hold the CHANNEL ON key for the first channel, then press the subsequent CHANNEL ON keys.*

Note: *The values between the channels are not relative. Selecting more than one channel and changing the value of any parameter will set all selected channels to the same value.*

3) **Rotate the inner JOG wheel to change the level value.**
As you change the value, not only does the display value change, it is also displayed graphically using the peak level meters:



The level range is from 000 to 127. The default level is 104.

Setting the Pan

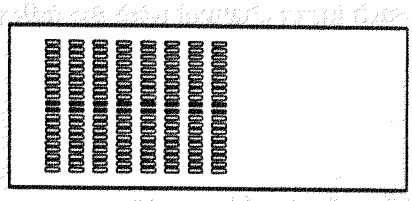
You set the stereo position of each input channel with this Mix Mode function.

1) **Rotate the inner JOG wheel to select the "PAN" function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The pan data will be underlined: PAN MID.

3) **Select the channel(s) you want to modify.**

4) **Rotate the inner JOG wheel to change the pan position.**



The pan position range is from L63 (extreme left) through MID (center) to R63 (extreme right). The default pan position is MID.

Setting the Send Levels

The DR8 has two effect send channels, SEND1 and SEND2. When the Auxiliary Send is set to stereo (see "Selecting Mono or Stereo Send" on page 59), the send channels become SEND L and SEND R.

You set the stereo send level and stereo pan for each input channel with the following functions.

Stereo send level:

1) **Rotate the inner JOG wheel to select the "SENDS" function.**
This function sets the stereo send level for each channel.

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The send level data will be underlined: SENDS 000.

3) **Select the channel(s) you want to modify.**

4) **Rotate the inner JOG wheel to change the level value.**
The send level range is from 000 to 127. The default send level is 000.

The send level will also be displayed graphically using the peak level meters.

Stereo send pan position:

1) **Rotate the inner JOG wheel to select the "SDPAN" function.**
This function sets the stereo send pan position for each channel.

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The send pan position data will be underlined: SPAN MID.

3) **Select the channel(s) you want to modify.**

4) **Rotate the inner JOG wheel to change the level value.**
The send pan position range is from L63 (extreme left) through MID (center) to R63 (extreme right). The default pan position is MID.

The pan position will also be displayed graphically using the peak level meters.

When the Auxiliary Send is set to mono (see "Selecting Mono or Stereo Send" on page 59), you set the two send levels for each input channel with the following functions.

Mono send level:

1) **Rotate the inner JOG wheel to select the desired function.**
Select either the "SEND1" or the "SEND2" function.

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The send level data will be underlined: SEND1 000. This example shows the "SEND1" function.

3) **Select the channel(s) you want to modify.**

4) **Rotate the inner JOG wheel to change the level value.**
The send level range is from 000 to 127. The default send level for both send channels is 000.

The send level will also be displayed graphically using the peak level meters.

Selecting the Bus Send

The internal stereo bus is used when you are performing bounce-down recordings. Also see "Using the BUS function" on page 36. This Mix Mode function turns on the bus send for the selected input channel(s). The level and stereo pan position of the channel were set in previous steps.

1) **Rotate the inner JOG wheel to select the "BUS" function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The bus send data will be underlined: BUS OFF.

3) **Select the channel(s) you want to modify.**

4) **Rotate the inner JOG wheel to toggle the bus send "ON" or "OFF".**
The default is OFF.

Setting the Master Level

While the DR8 is in Mix Mode, you can set the master level.

> **Note:** *You can also set the master level in the Sub-Menu "MIXER" Mode. See "Adjusting the Master Level" on page 58. Both functions are changing the same value.*

1) Press the ALL key.

The master level is displayed with its data underlined: MASTR 104.

> **Note:** *Unlike the Sub-Menu "MIXER" Mode function, in this function you cannot use the cursor to select another item.*

2) Rotate the inner JOG wheel to change the master level value.

The master level range is from 000 to 127. The default master level is 104.

> **Note:** *The adjusted signal is sent to the ANALOG OUTPUT - MASTER L/R connectors, the front panel PHONES stereo jack, and the DIGITAL I/O - MASTER OUT connectors.*

Press the ALL key again to return to the previously selected item.

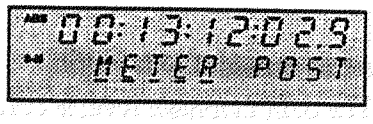
You can also press one of the CHANNEL ON keys to cancel this function.

System Settings

You set the master level, set the sends, and change the meter behavior with the following Sub-Menu "MIXER" Mode functions:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the MIX(MIXER) key.**
You will see a display similar to the following:



Selecting Pre- or Post- Metering

The peak level meters can show the channel levels before (PRE) or after (POST) the Channel Level parameter (see "Setting the Level" on page 54). You should select POST to view the effects of the mix balance on the clipping conditions of each channel.

1) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The metering data will be underlined: METER PRE.

2) **Rotate the inner JOG wheel to toggle between "POST" and "PRE".**
The default is PRE.

Adjusting the Master Level

This function changes the master output signal level. It is adjusting the same value as shown previously (see "Setting the Master Level" on page 57).

1) **Rotate the inner JOG wheel to select the "MASTR" (Master Level) function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The master level data will be underlined: MASTR 104.

3) **Rotate the inner JOG wheel to change the master level value.**
The master level range is from 000 to 127. The default master level is 104.

> **Note:** *The adjusted signal is sent to the ANALOG OUTPUT - MASTER L/R connectors, the front panel PHONES stereo jack, and the DIGITAL I/O - MASTER OUT connectors.*

Selecting Mono or Stereo Send

This function controls if the two Auxiliary Sends are individual (MONO) or paired (STEREO). The status of this function effects the behavior of the other related functions.

1) **Rotate the inner JOG wheel to select the "SENDS" function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The send data will be underlined: SENDS MONO.

3) **Rotate the inner JOG wheel to toggle the send between "MONO" and "STER" (stereo).**
The default is MONO.

Selecting Pre- or Post- Send

You can switch the signal path of the send channels to be before (PRE) or after (POST) the individual channel levels.

Mono pre- or post- send:

1) **Rotate the inner JOG wheel to select the desired function.**
Select either the "SEND1" or the "SEND2" function.

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The send path data will be underlined: SEND1 POST. This example shows the "SEND1" function.

3) **Rotate the inner JOG wheel to toggle the send between "PRE" and "POST".**
The default is POST.

Stereo pre- or post- send:

1) **Rotate the inner JOG wheel to select the "SENDS" function.**
This function switches the signal path of the stereo send channel to be before (PRE) or after (POST) the individual channel levels.

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The send path data will be underlined: SENDS POST.

3) **Rotate the inner JOG wheel to toggle the send between "PRE" and "POST".**
The default is POST.

Selecting Normal or Peak-Hold Metering

You can select peak hold behavior for the peak level meters.

1) **Rotate the inner JOG wheel to select the "METER" function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The metering data will be underlined: METER NORM.

3) **Rotate the inner JOG wheel to toggle between "NORM" and "HOLD".**
The default is NORM.

The meters will hold the last peak indefinitely when you select HOLD. This can be useful in a situation where you are recording complex, highly dynamic sounds and you are unable to watch the meters. After you finished the recording, the peak levels will still be displayed on the meters. If the amber 0 dB (Peak) segment is lit, it indicates the level was probably too high and digital distortion resulted.

You clear the meters by pressing the ESCAPE key.

Snapshot Settings

Up to 99 mixer snapshots can be stored and recalled. These points are identified using a two-digit number (01 to 99).

Storing a Snapshot

To store a mixer snapshot:

1) **In Mix Mode, adjust the mixer parameters.**
For details, see the previous sections.

2) **Press the STORE/ENT key.**
The message MEMORY will appear on the display.

3) **Press the SNAPSHOT key.**
The message SNAP -- will appear on the display.

4) **Enter a two-digit number.**
The "SNAP" message will flash several times. For example, if you selected digits 4 and 2, the message SNAP 42 will flash on the display.

The snapshot will be stored and the DR8 will return to the previous display of Mix Mode.

Note: *The settings of the front panel GAIN controls is not stored in the snapshot. These controls are part of the analog circuitry of the DR8. The mixer settings stored in the snapshot are all in the digital domain.*

Recalling a Snapshot

To recall a mixer snapshot:

1) **In Mix Mode, press the SNAPSHOT key.**
The message SNAP -- will appear on the display.

2) **Enter a two-digit number.**
The "SNAP" message will flash several times. For example, if you selected digits 42, the message SNAP 42 will flash on the display.

The snapshot will be recalled and all the mixer parameters set to its stored values. The DR8 will return to the previous display of Mix Mode.

Mapping Snapshots

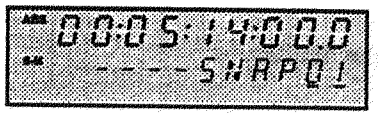
The allocation of stored snapshots to specific times is called Mapping. You create a map of snapshots and then play them back for automated mixing during playback.

Locating Snapshots

1) **Locate to the point you want to assign the snapshot to.**

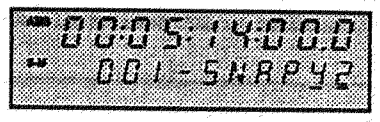
2) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

3) **Press the SNAPSHOT(MAP) key.**
You will see a display similar to the following:



4) **Use the JOG/SHUTTLE control to select the snapshot you want to assign.**

5) **Press the STORE/ENT key.**
The display text flashes. The snapshot is assigned to a map step. You will see a display similar to the following:



6) **Locate to another point.**

7) **Use the JOG/SHUTTLE control to select the snapshot you want to assign and press the STORE/ENT key.**

8) **Repeat the above two steps.**
This way, you create a map of snapshots.

Checking Snapshots

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the SNAPSHOT(MAP) key.**

3) **Rotate the outer SHUTTLE control to move the cursor to the step number.**
The step number will be underlined: 001-SNAP42. See "Cursor" on page 25.

4) **Rotate the inner JOG wheel to change the step number.**
The display will show the snapshot numbers and the point at which each step is located. You can step forwards and backwards through your map of snapshots.

Inserting Snapshots

1) **Check you r snapshot map.**
Use the steps shown in "Checking Snapshots" on page 62.

2) **Locate to another point.**

3) **Use the JOG/SHUTTLE control to select the snapshot you want to assign and press the STORE/ENT key.**
The snapshot numbers are assigned by the location of the snapshot on the time axis. When you assign a new snapshot to a locate point earlier than an existing snapshot, the new snapshot is given the existing number. The subsequent snapshot numbers get updated.

Erasing Snapshot Locations

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the SNAPSHOT(MAP) key.**

3) **Rotate the outer SHUTTLE control to move the cursor to the step number.**
The step number will be underlined: 001-SNAP42.

4) **Rotate the inner JOG wheel to select the desired step number.**

5) **Press the REC ⏺ key.**
The selected snapshot will be erased and the subsequent step numbers will be updated.

> **Note:** *Erasing a snapshot only removes the snapshot from the time axis. The snapshot data is still stored in memory and can be recalled. See "Recalling a Snapshot" on page 61.*

Automation Mix

When the DR8 is in Normal Mode, you can play the automated mix you just programmed.

1) **press the SNAPSHOT key.**
The green LED beside the key lights.

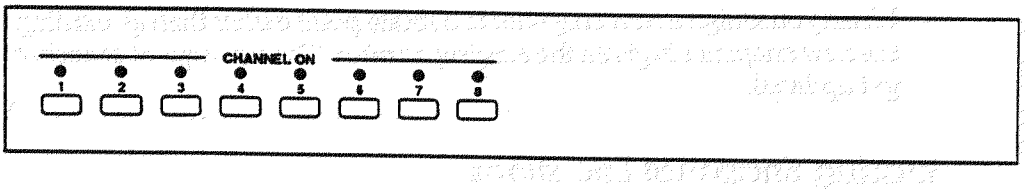
2) **Press the Play ▷ key to listen to the mix.**
As the DR8 plays through the recording, the different mixer snapshots get loaded, changing the levels and other functions dynamically.

Other Functions

Solo Function

The solo function allows you to listen to selected channels in isolation.

1) **Press the SOLO key.**
The green LED beside the key flashes. All the LEDs above the CHANNEL ON keys are switched off.



2) **Press the CHANNEL ON key for the channel(s) you want to monitor.**
You can select more than one channel by holding the first key while you press other keys.

You can also solo channels when the THRU MIX key has been selected. This allows you to listen to the input channels in isolation.

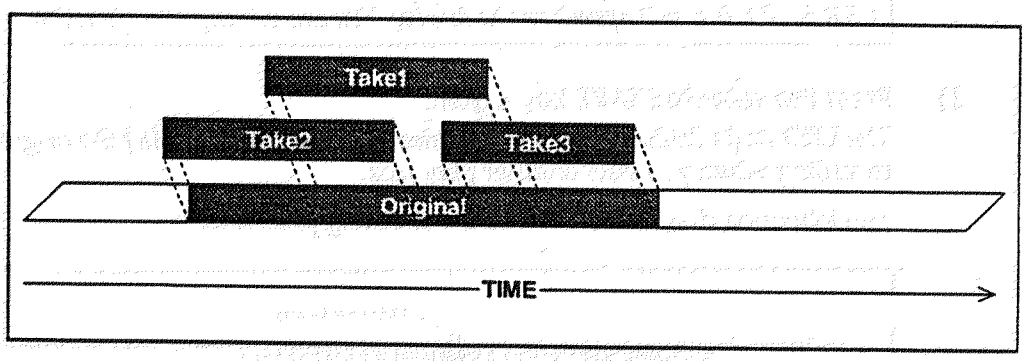
3) **Press the SOLO key again to cancel the solo function.**

7 Take Functions

The DR8 gives you the ability to record up to five takes of a recording, allowing you to compare different takes or replace the current recording with data that was stored as a take.

The Take functions are similar to the Undo function, only much more versatile. When you press the UNDO key, you can only compare two recordings — the old and the new (see "Recording Undo" on page 44). With the Take functions, you can compare five stored takes plus the new and old recordings.

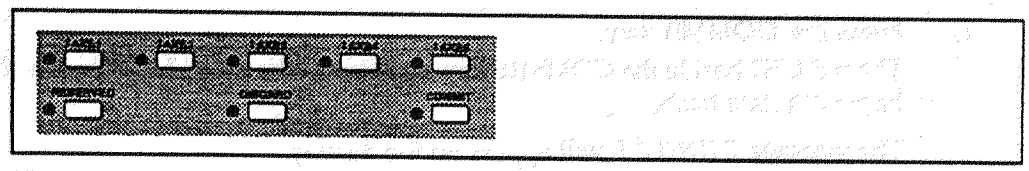
The following diagram illustrates the take function:



Storing a Take

1) **Make a recording of some material.**
See "Selecting the Input Channels" on page 35, and "Arming Tracks" and "Starting & Stopping Recording" on page 38.

2) **Press the RESERVED key.**
The red LED beside the RESERVED key flashes and the green LEDs beside the available TAKE1 to TAKE5 keys flash. The LEDs beside TAKE keys with data are turned off.



The message RESERVED will appear on the display.

3) **Press the TAKE key you want to use to store the recording.**
When the take is stored, the LED lights up beside the corresponding TAKE key.

Checking a Take

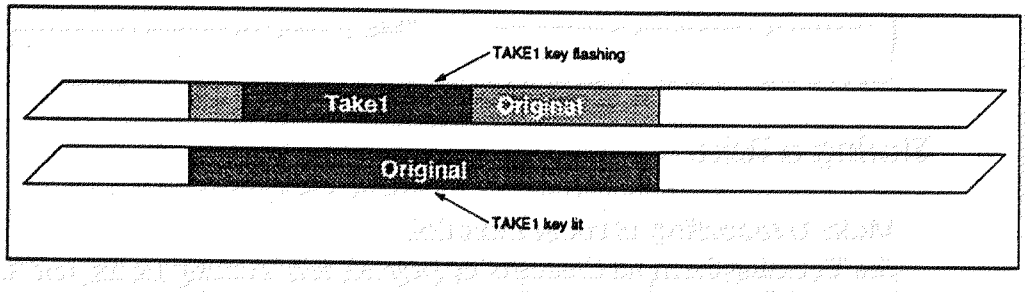
1) **Press the TAKE key you want to listen to.**
Select from the TAKE keys which have a lit LED. When a TAKE key has been selected, its LED flashes.

2) **Press the Play ▷ key to listen to the take.**
The DR8 will play from the current point, switching to the stored take data when it reaches that location.

> **Note:** *When a TAKE key LED is flashing, you cannot record or edit. The message* `TAKE PLAY` *will appear on the display. You can use any other function.*

3) **Press the selected TAKE key again.**
The LED stops flashing and is left turned on. The DR8 will play the original recording when you start another playback.

The following diagram illustrates the checking procedure:



Committing a Take

Once you have found the "perfect" take, you can replace the original data with the following procedure:

1) **Press the COMMIT key.**
The red LED beside the COMMIT key flashes and the green LEDs beside the TAKE keys with data flash.

The message `COMMIT` will appear on the display.

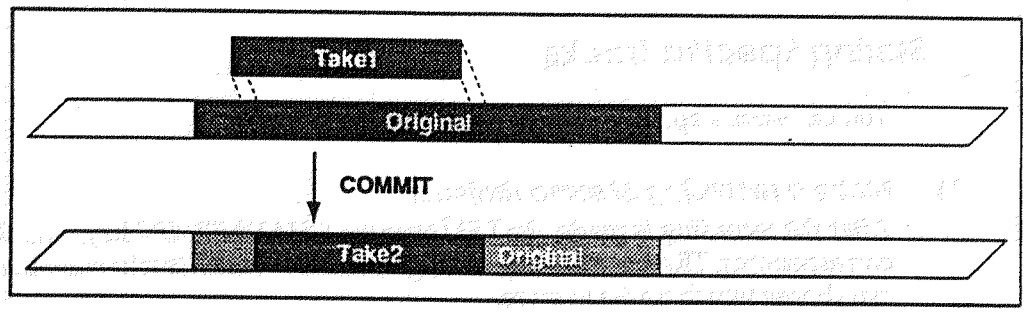
2) **Press the TAKE key that contains the "perfect" take.**
The LED beside the selected key continues to flash. (The LEDs beside the rejected keys turn off.) The LED beside the COMMIT key continues to flash.

The message `SURE ??` will appear on the display.

3) **Press the STORE/ENT key to confirm.**
Your "perfect" take replaces the original data and the selected TAKE key is cleared.

> **Note:** *You can still restore the original material even after you have used the commit procedure by pressing the UNDO key.*

The following diagram illustrates the commit procedure:



Deleting a Take

1) **Press the DISCARD key.**
The red LED beside the DISCARD key flashes and the green LEDs beside the TAKE keys with data flash.

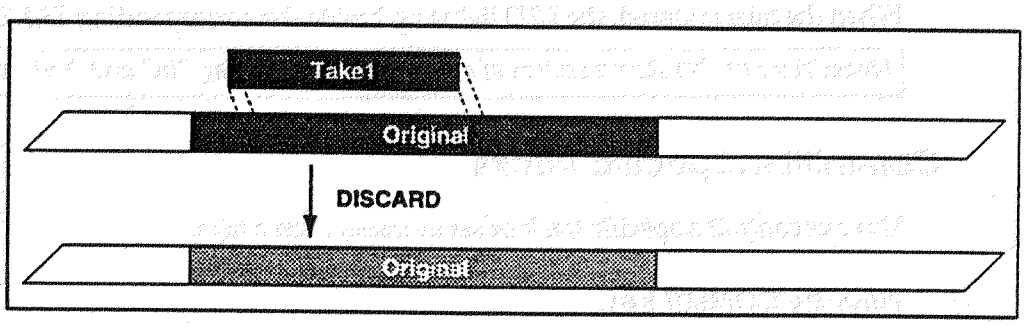
The message DISCARD will appear on the display.

2) **Press the TAKE key that you want to delete.**
The LED beside the selected key continues to flash. (The LEDs beside the remaining keys turn off.) The LED beside the DISCARD key continues to flash.

The message SURE ?? will appear on the display.

3) **Press the STORE/ENT key to confirm.**
The selected TAKE key is cleared.

The following diagram illustrates the discard procedure:

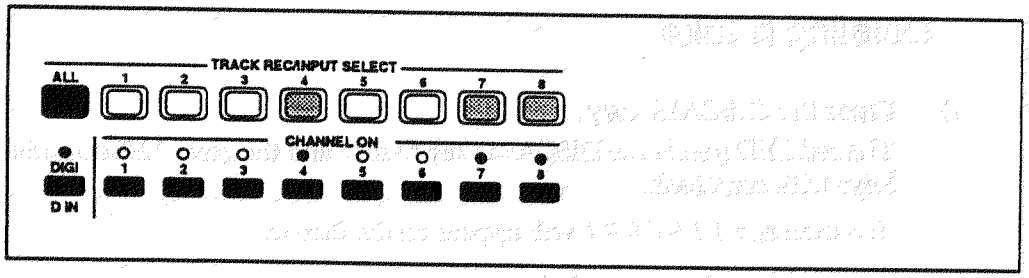


Other Take Applications

Storing Specific Tracks

You can store a specific track or set of tracks to a take.

1) **Make a recording of some material.**
After the recording is made, the LED over the CHANNEL ON keys and the corresponding TRACK REC key will light, to show which tracks contain data. You can choose which tracks to store.



2) **Press the RESERVED key.**
The red LED beside the RESERVED key flashes and the green LEDs beside the available TAKE keys flash. The LEDs beside TAKE keys with data are turned off.
The message *RESERVED* will appear on the display.

3) **Press the appropriate TRACK REC key (or keys) to turn off unwanted tracks.**

4) **Press the TAKE key you want to use to store the recording.**
When the take is stored, the LED lights up beside the corresponding TAKE key.

> **Note:** *You can also store a section of a recording by assigning "in" and "out" points.*

Committing Specific Tracks

You can commit a specific track or set of tracks from a take.

1) **Press the COMMIT key.**
The message *COMMIT* will appear on the display.

2) **Press the TAKE key that contains the part you want to commit to the track.**
The message *SURE ??* will appear on the display.

3) **Press the appropriate TRACK REC key(s) to turn off tracks you do not want to commit.**

4) **Press the STORE/ENT key to confirm.**

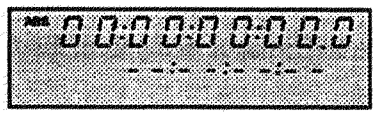
8 Locate Functions

This chapter explains how to use the locate functions. You can locate to a specific point just by entering the time on the display, store and recall up to eight direct locate points using the number keypad, and store and recall up to 100 stack locate points. Unlike tape based recorders, the DR8 does not need to rewind or fast forward to locate specific points. DR8 locate functions are instantaneous.

Locating to a Specific Point

To locate to a specific point:

1) **Press the LOCATE key.**
You will see a display similar to the following:



2) **Use the numeric keypad to enter the desired time.**
Time values should be entered from left to right. For example, to enter the time 15 minutes 32 seconds 20 frames, press these numeric keys in the following order: 1, 5, 3, 2, 2, 0. - -:1 5:3 2:2 0 will appear on the display.

> **Note:** *If you enter a time value that is greater than the possible range, the correct position will be calculated. For example, if you enter 78 seconds, the DR8 will locate to 1:18.*

If you make a mistake while entering the time, press the RESET key, then re-enter the time.

Press the ESCAPE key to cancel the locate function.

3) **Press the LOCATE key.**
The DR8 will locate to the specified point.

> **Note:** *Pressing the STORE/ENT key also causes the DR8 to locate to the specified point.*

A quick and convenient method of entering a location value is to use the :/STACK key. This key pushes two digits of the locate time with one key press. For example, to enter the time 1 hour 5 seconds 6 frames:

Press the 1 key, then press the :/STACK key. 0 1:- -:- -:- - will appear on the display.

Press the :/STACK key again. 0 1:0 0:- -:- - will appear on the display.

Press the 5 key, then press the :/STACK key. 0 1:0 0:0 5:- - will appear on the display.

Finally, press the 6 key, then press the :/STACK key. 0 1:0 0:0 5:0 6 will appear on the display and the DR8 will locate to that point.

Direct Locate Points (1 ~ 9 Keys)

Up to nine direct locate points can be stored and recalled using the 1 to 9 numeric keys. These are called direct locate points because you can locate to the stored point directly, just by pressing the respective numeric key.

Storing Direct Locate Points

To store a direct locate point:

1) **Locate to the desired point.**
The location will be shown on the display. See "Locating to a Specific Point" on page 69.

2) **Press the STORE/ENT key.**
The message MEMORY will appear on the display and the time display flashes.

3) **Press a numeric key to store the direct locate point.**
A "LOCATE" message will flash on the display. For example, if you selected the 2 numeric key, the message LOCATE 2 will flash on the display. The locate point is stored.

To store a direct locate point during playback or recording:

1) **Press the STORE/ENT key when the desired time is reached.**
The message MEMORY will appear and the time display will freeze at the current location and start flashing. Playback or recording will continue uninterrupted while you enter the point.

2) **Press a numeric key to store the direct locate point.**
A "LOCATE" message will flash on the display. For example, if you pressed the 4 numeric key, the message LOCATE 4 will flash on the display. The locate point is stored.

Recalling Direct Locate Points

To recall a direct locate point:

1) **Press the corresponding 1 to 9 numeric key.**
The DR8 will locate to the stored point.

If no time value has been stored, the DR8 will locate to the beginning of the disk.

Stack Locate Points

Up to 100 stack locate points can be stored and recalled. These points are identified using a two-digit number (00 to 99).

Storing Stack Locate Points

To store a stack locate point:

1) **Locate to the desired point.**
The location will be shown on the display. See "Locating to a Specific Point" on page 69.

2) **Press the STORE/ENT key.**
The message MEMORY will appear on the display and the time display flashes.

3) **Press the STACK key.**
The message STACK -- will appear on the display.

4) **Enter a two-digit number.**
The "STACK" message will flash several times. For example, if you selected the digits 4 and 2, the message STACK 42 will flash on the display.
The stack locate point will be stored and the previous mode restored.

To store a stack locate point during playback or recording:

1) **Press the STORE/ENT key when the desired time is reached.**
The message MEMORY will appear and the time display will freeze at the current location and start flashing. Playback or recording will continue uninterrupted while you enter the point.

2) **Press the STACK key.**
The message STACK -- will appear on the display.

3) **Enter a two-digit number.**
The "STACK" message will flash several times. For example, if you selected the digits 8 and 6, the message STACK 86 will flash on the display.
The stack locate point will be stored and the time display for playback or recording will continue from the current point.

Recalling Stack Locate Points

To recall a stack locate point:

1) **Press the STACK key.**
The message STACK -- will appear on the display.

2) **Enter the corresponding two-digit number.**
The DR8 will locate to the stored point.

If no time value has been stored, the DR8 will locate to the beginning of the disk.

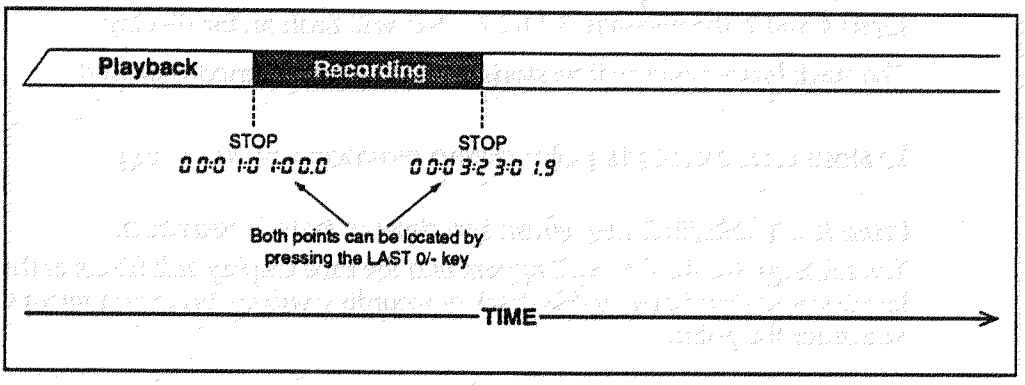
Last Memory

The LAST 0/- key function allows you locate to the last two points at which the stop key was pressed. This can be used to return to the previous point after locating to a different point, or after playing, recording, rewinding, and fast forwarding. It can also be used when checking direct and stack locate points. First, locate to the point that you want to check, then press the LAST 0/- key to return to the previous point.

In addition, this function can be used to check whether a recording was successful. When you stop recording, pressing the LAST 0/- key will return to the point at which recording started (presuming that the stop key was pressed before recording). Pressing the LAST 0/- key again will locate to the point at which recording was stopped.

The LAST 0/- key can be pressed repeatedly. The DR8 will simply toggle between the last two places where you pressed the stop key.

The following diagram shows how the last memory function can be used to locate to the start and end points of a recording:



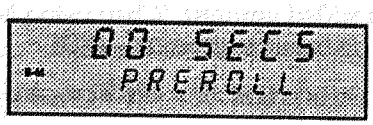
Preroll

The preroll function allows you to locate to a point a few seconds before the specified locate point. For example, if the preroll value is set to 5, and the preroll function is on, the DR8 will locate to a position 5 seconds before the specified locate point.

Setting the Preroll Time

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the PREROLL(TIME) key.**
You will see a display similar to the following:



3) **Use the JOG/SHUTTLE control, or numeric keypad to set the preroll time.**
Preroll time can be set from 0 to 59 seconds. The default preroll time is 2 seconds.

4) **Press the STORE/ENT key.**
The new preroll time will be entered.

Operation

1) **Press the PREROLL key.**
The LED beside the key will light up.
The next time you locate to a point, the DR8 will locate to a position before the point as specified by the preroll time.

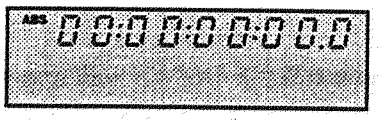
2) **Press the PREROLL key again.**
The LED beside the key will switch off and the DR8 will locate to the exact position you specify.

9 Time Display

The DR8 can display time in any one of three ways: absolute, relative, and BBC:

Absolute Time (ABS)

Absolute time effectively starts at the beginning of the hard disk at zero, and is fixed. When the DR8 is in this mode, the ABS indicator will be lit on the display. You will see something similar to the following:



Relative Time (REL)

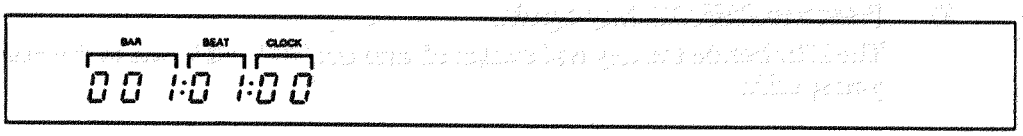
Relative time, although referenced to absolute time, can be reset to zero at any point, or offset from absolute time by a specified amount. When using MIDI or SMPTE synchronization, relative time can be used to offset the DR8.

The REL indicator will be lit when this mode is active. You will see a display similar to the following:

The following diagram shows the meaning of the indicators:

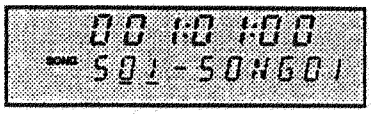
Bars, Beats, Clocks Display (BBC)

BBC display is intended for use with MIDI synchronization. See "Song Mode" on page 110. The display shows Bar, Beat, and Clock (1 beat = 24). The following diagram shows the meaning of the indicators:



The ABS/REL key is used to switch between absolute time and relative time, and the SONG key is used to switch between time display and BBC display.

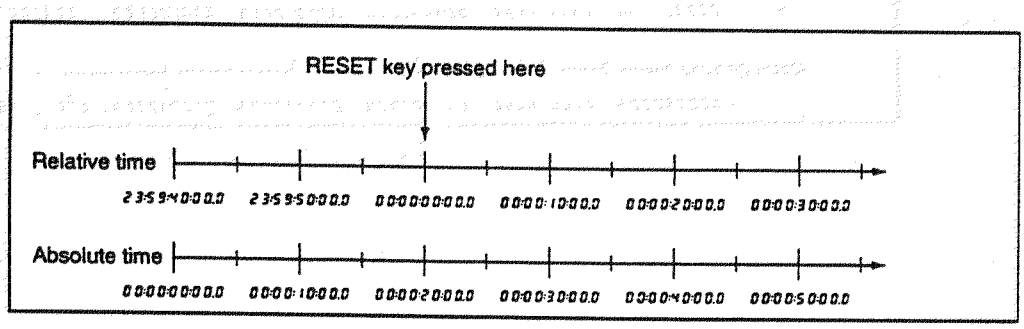
When this mode is active, the SONG indicator is lit on the display, similar to the following:



Setting Relative Time to Zero

1) **Locate the point at which you want to set relative time to zero.**

2) **Press the RESET key.**
Relative time will be selected automatically, and set to 00:00:00:00.0.
To return to absolute time, press the ABS/REL key.



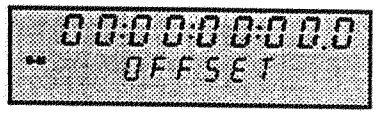
Using the RESET key to set the relative time means that you cannot set the relative time at a point before absolute zero. This is because the relative zero can only be set at a point after the absolute zero. To set relative time to a point before absolute zero, use the offset function.

Setting a Relative Time Offset

The relative time can also be set by specifying an offset.

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the ABS/REL(OFFSET) key.**
You will see a display similar to the following:



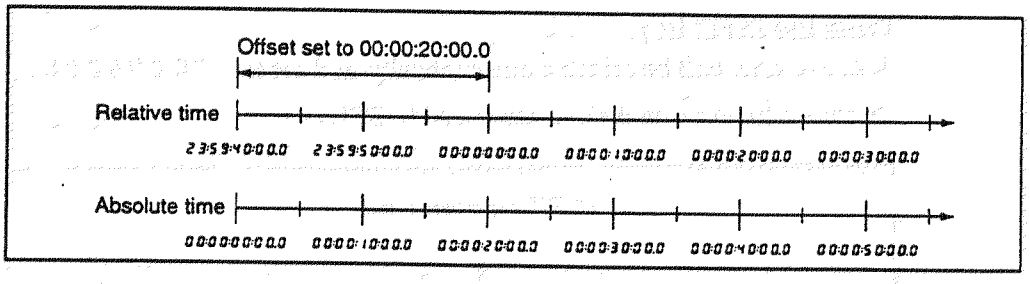
3) **Use the JOG/Shuttle control, or numeric keypad to specify the offset.**

> **Tip:** *You may find it much more efficient to use the numeric keypad to enter a large offset value.*

If you made a mistake, press the RESET key to switch back to the current setting of the offset value.

4) **Press the STORE/ENT key.**
Relative time will now be displayed with the specified offset.

The following diagram shows relative time with a 20 second offset:

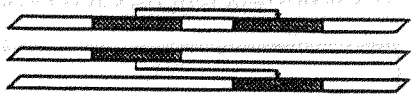


10 Editing

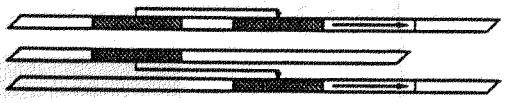
This chapter describes the editing functions.

The DR8 has eight edit functions: copy, copy+insert, move, move+insert, insert, erase, delete, and slip:

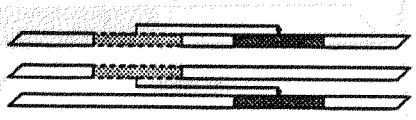
Copy the specified section to any track. Material at the destination is overwritten.



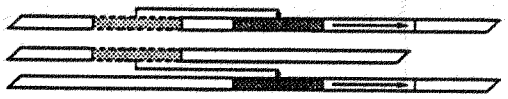
Copy+Insert the specified section to any track. Subsequent material is moved back.



Move the specified section to any track. Material at the destination is overwritten.

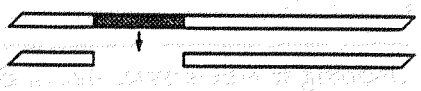


Move+Insert the specified section to any track. Subsequent material is moved back.

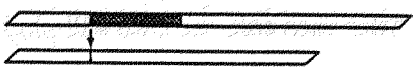


Insert a blank section of a specified length and move subsequent material backward.

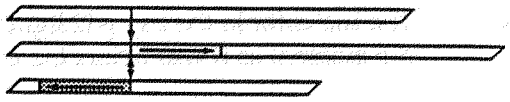
Erase the specified section.



Delete the specified section and move subsequent material forward.



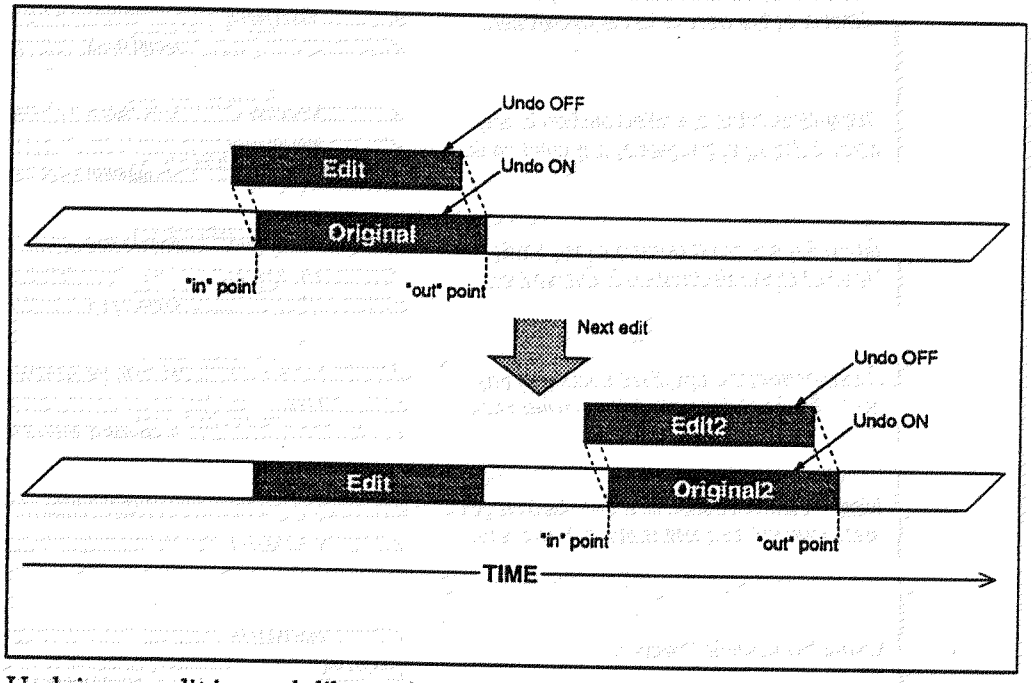
Slip the material forward or backward to the edit point.



Undoing an Edit

Before looking at each edit function, you need to know how to undo an edit. This will be useful when edits do not turn out as planned. It also gives you the freedom to experiment with edits — using the undo function to "compare" a newly edited version with the original

The following diagram shows how the edit undo function works:



Undoing an edit is much like undoing a recording. See "Recording Undo" on page 44..

After each edit, the DR8 will play the modified material.

1) **To undo an edit, press the UNDO key.**
The indicator in the key will light up. While this indicator is lit, the DR8 will play the material as it was before the edit.

2) **To switch back to the edited material, press the UNDO key again.**
Before performing another edit, you must decide whether you want to keep the edit or not. Once another edit is made, the undo function will apply to that new edit.

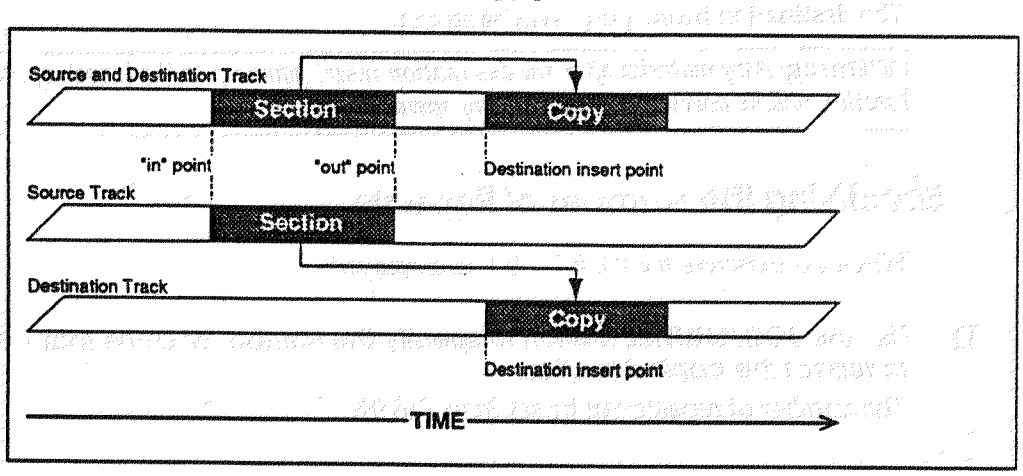
Once you have decided, leave the undo function set as required.

Copy

The copy function allows you to make multiple copies of a section of audio and re-position it elsewhere. You can copy material from one section of a track to another, or across tracks.

Note: *The copy operation will overwrite any material that may be present at the destination insert point.*

The following diagram illustrates the copy procedure:



Specifying the Copy Source Section

The start point and end point of the section to be copied are identified using the "in" point and "out" point respectively.

1) **Set the "in" and "out" points to define the copy source section.**
See "Specifying the "in" Point and "out" Point" on page 27.

Press the IN key to check the "in" point and press the OUT key to check the "out" point.

To play the specified section, press the IN->OUT key. You can also use the TO, OVER, and FROM keys to check the "in" and "out" points. See "Special Play Keys" on page 47.

Specifying the Destination Insert Point

1) **Locate to the desired position for the destination.**
Refer to the "Locate Functions" on page 69.

Tip: *Prior to doing any serious editing, it is a good idea to mark some locate points using the functions described in the "Locate Functions" on page 69. For example, mark the start of verses and other relevant sections. Having done so, you will find it much easier to locate to new positions for copying, moving, and inserting edits.*

2) **Press the EDIT key to select the Copy function.**
The LED beside the key will light up, and you will see a display similar to the following:

3) **Press the STORE/ENT key.**
The destination insert point will be stored.

> **Warning:** *Any material after the destination insert point up to the length of the source section will be overwritten by the copy operation.*

Specifying the Number of Repeats

While the message REPEAT 01 is displayed:

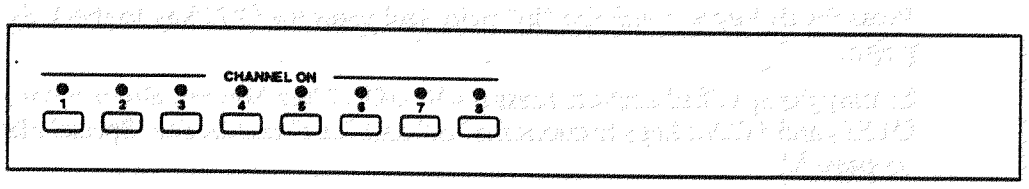
1) **Use the JOG/SHUTTLE control to specify the number of times that you want to repeat the copied section.**
The number of repeats can be set from 1 to 99.

Selecting the Source & Destination Tracks

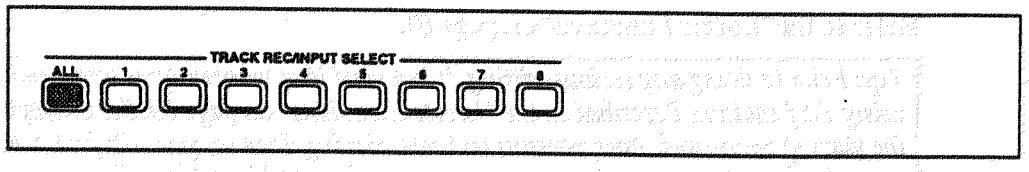
The CHANNEL ON keys are used to select the copy source, and the TRACK REC(INPUT SELECT) keys are used to select the copy destination.

You can copy one track, or a number of tracks simultaneously.

1) **Use the CHANNEL ON keys to select the copy source tracks.**
The corresponding indicators will light up.



2) **Use the TRACK REC(INPUT SELECT) keys to select the copy destination tracks.**
The corresponding keys will light up.



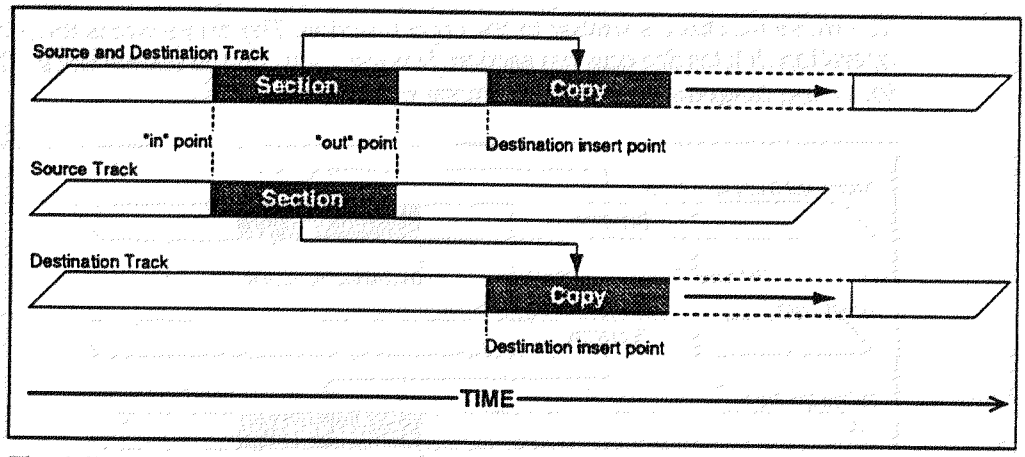
Executing the Copy

1) **Press the STORE/ENT key to execute the copy.**
When the DR8 has completed the copy operation, the message DONE will momentarily appear on the display.

The LED beside the EDIT key will switch off and the previous mode restored.

Copy+Insert

The copy+insert function works basically the same as the copy function. However, unlike copy, the copy+insert function moves any existing material at the specified destination behind the new material rather than overwriting it. The following diagram illustrates the copy+insert procedure:



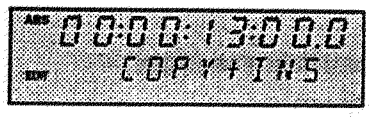
The following steps are similar to the operation detailed in "Copy" on page 79. Only an outline is provided here. Refer to the previous steps for explanations.

1) **Set the "in" and "out" points to define the copy source section.**
See "Specifying the "in" Point and "out" Point" on page 27.

2) **Locate to the desired position for the destination insert point.**
Refer to the "Locate Functions" on page 69.

3) **Press the EDIT key to enter Edit Mode.**
The EDIT indicator will light up

4) **Use the JOG/SHUTTLE control to select the Copy+Insert function.**
You will see a display similar to the following:



5) **Press the STORE/ENT key.**

6) **Use the JOG/SHUTTLE control to specify the number of repeats.**

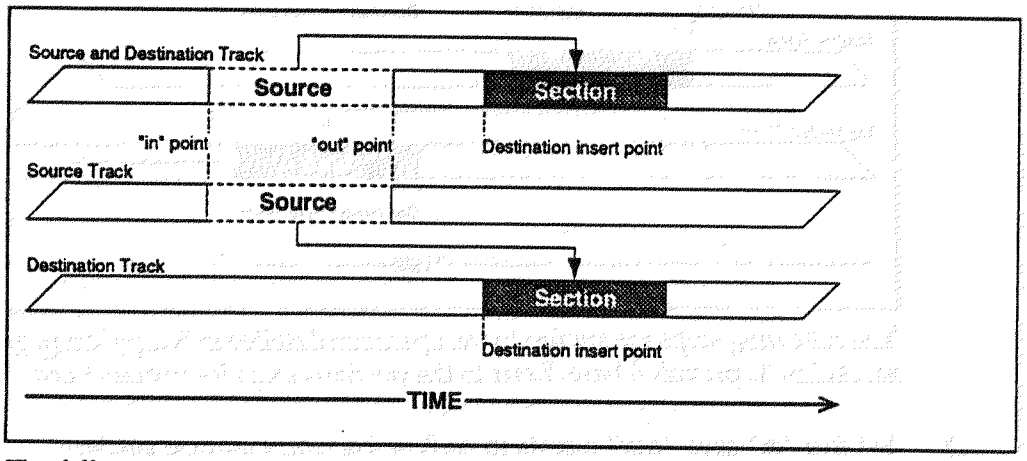
7) **Use the CHANNEL ON keys to select the copy source tracks.**

8) **Use the TRACK REC(INPUT SELECT) keys to select the copy destination tracks.**

9) **Press the STORE/ENT key to execute the copy.**
When the DR8 has completed the copy operation, the message DONE will momentarily appear on the display. The LED beside the EDIT key will switch off and the previous mode restored.

Move

The move function is similar to the copy function. The difference is the move operation deletes the original section, leaving a gap on the source track. The following diagram illustrates the move procedure:



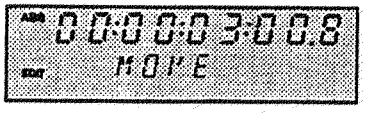
The following steps are similar to "Copy" on page 79, therefore only an outline is provided here.

1) **Set the "in" and "out" points to define the move source section.**
See "Specifying the "in" Point and "out" Point" on page 27.

2) **Locate to the desired position for the destination insert point.**
Refer to the "Locate Functions" on page 69.

3) **Press the EDIT key to enter Edit Mode.**
The EDIT indicator will light up

4) **Use the JOG/SHUTTLE control to select the Move function.**
You will see a display similar to the following:



5) **Press the STORE/ENT key.**

6) **Use the JOG/SHUTTLE control to specify the number of repeats.**

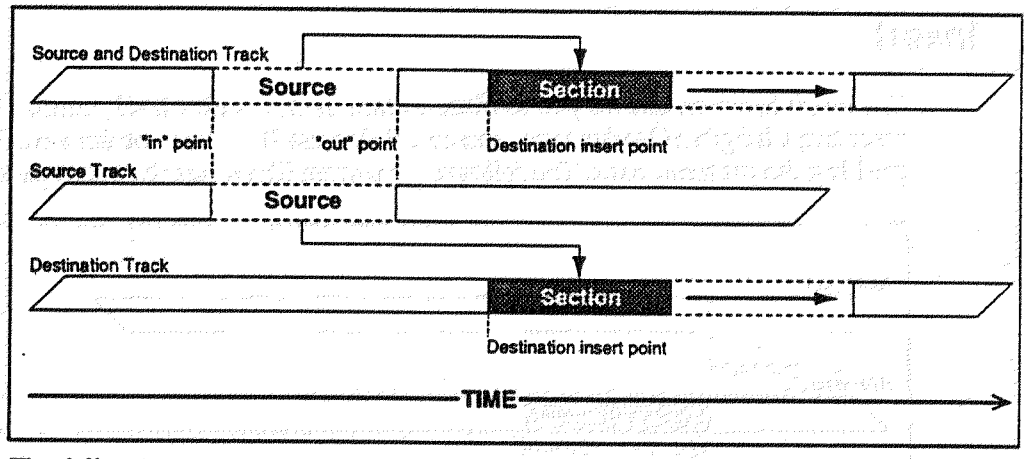
7) **Use the CHANNEL ON keys to select the move source tracks.**

8) **Use the TRACK REC(INPUT SELECT) keys to select the move destination tracks.**

9) **Press the STORE/ENT key to execute the move.**
When the DR8 has completed the move operation, the message DONE will momentarily appear on the display. The LED beside the EDIT key will switch off and the previous mode restored.

Move+Insert

The move+insert function works basically the same as the move function. However, unlike move, the move+insert function moves any existing material at the specified destination behind the new material rather than overwriting it. The following diagram illustrates the move+insert procedure:



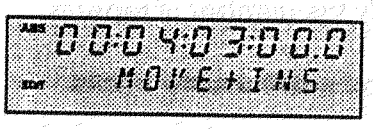
The following steps are similar to "Copy" on page 79, therefore only an outline is provided here.

1) **Set the "in" and "out" points to define the move source section.**
See "Specifying the "in" Point and "out" Point" on page 27.

2) **Locate to the desired position for the destination insert point.**
Refer to the "Locate Functions" on page 69.

3) **Press the EDIT key to enter Edit Mode.**
The EDIT indicator will light up

4) **Use the JOG/SHUTTLE control to select the Move+Insert function.**
You will see a display similar to the following:



5) **Press the STORE/ENT key.**

6) **Use the JOG/SHUTTLE control to specify the number of repeats.**

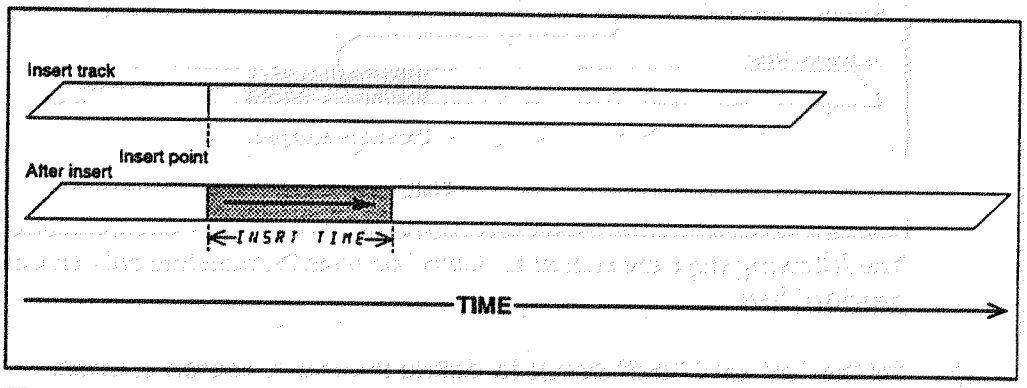
7) **Use the CHANNEL ON keys to select the move source tracks.**

8) **Use the TRACK REC(INPUT SELECT) keys to select the move destination tracks.**

9) **Press the STORE/ENT key to execute the move.**
When the DR8 has completed the move operation, the message DONE will momentarily appear on the display. The LED beside the EDIT key will switch off and the previous mode restored.

Insert

The insert function allows you to place a blank section into a track, similar to inserting a length of leader tape. You could also use it to time-correct a track by pushing the material back. The following diagram illustrates the insert procedure:



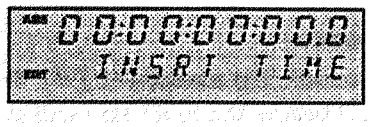
This procedure is different than the preceding edit functions because you do not need to set an "in" point or "out" point.

1) **To set the insert point, locate to the desired position.**
Refer to the "Locate Functions" on page 69.

2) **Press the EDIT key to enter Edit Mode.**
The EDIT indicator will light up

3) **Use the JOG/SHUTTLE control to select the Insert function.**
You will see a display similar to the following:

4) **Press the STORE/ENT key.**
You will see a display similar to the following:



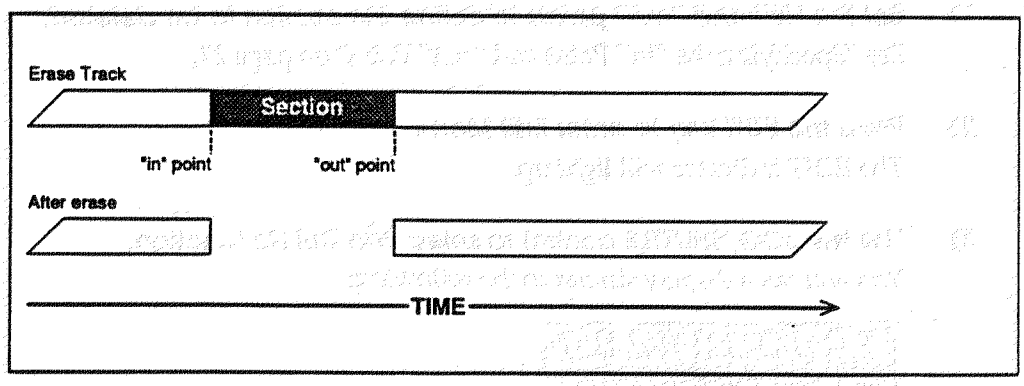
5) **Use the JOG/SHUTTLE control or the numeric keypad to specify the length of the insert.**
The insert time is shown on the time display.

6) **Use the TRACK REC(INPUT SELECT) keys to select the insert tracks.**

7) **Press the STORE/ENT key to execute the insert.**
When the DR8 has completed the insert operation, the message DONE will momentarily appear on the display. The LED beside the EDIT key will switch off and the previous mode restored.

Erase

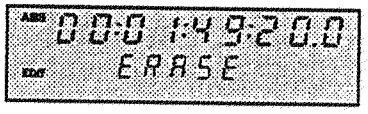
The erase function allows you to remove a section of audio from a track, but maintain the time gap. You could use it to delete an unwanted breath from a vocal track or a bad note from the keyboard track — where the erased track must stay in sync with other recorded material. The following diagram illustrates the erase procedure:



1) **Set the "in" and "out" points to define the section to be erased.**
See "Specifying the "in" Point and "out" Point" on page 27.

2) **Press the EDIT key to enter Edit Mode.**
The EDIT indicator will light up

3) **Use the JOG/SHUTTLE control to select the Erase function.**
You will see a display similar to the following:

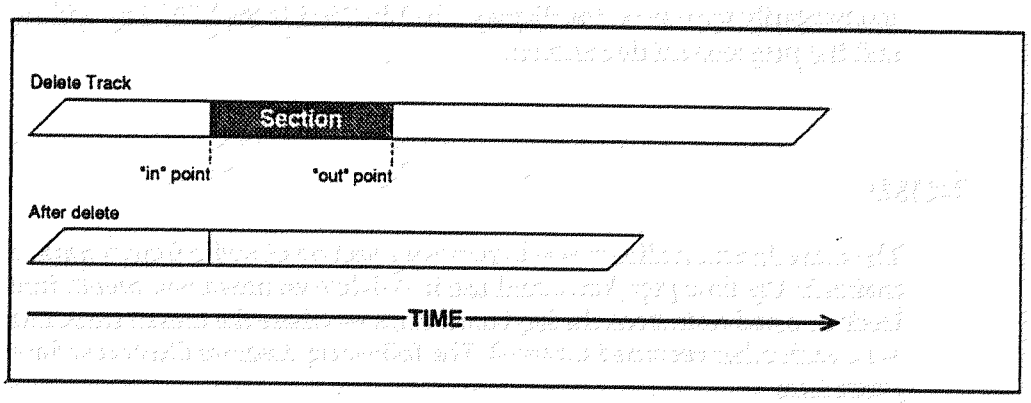


4) **Use the TRACK REC(INPUT SELECT) keys to select the tracks you want to erase.**

5) **Press the STORE/ENT key to erase the tracks.**
When the DR8 has completed the erase operation, the message DONE will momentarily appear on the display. The LED beside the EDIT key will switch off and the previous mode restored.

Delete

The delete function works basically the same as the erase function. However, the delete function also moves any subsequent material back. The following diagram illustrates the delete procedure:



1) **Set the "in" and "out" points to define the section to be deleted.**
See "Specifying the "in" Point and "out" Point" on page 27.

2) **Press the EDIT key to enter Edit Mode.**
The EDIT indicator will light up

3) **Use the JOG/SHUTTLE control to select the Delete function.**
You will see a display similar to the following:

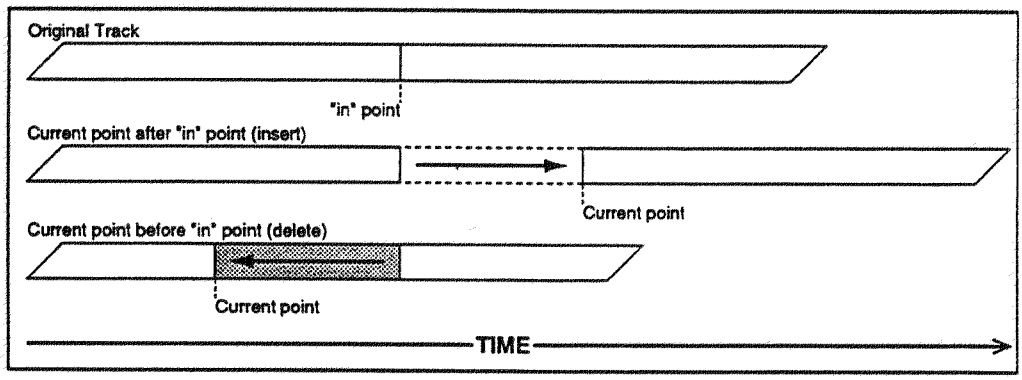
4) **Use the TRACK REC(INPUT SELECT) keys to select the tracks you want to delete.**

5) **Press the STORE/ENT key to delete the tracks.**
When the DR8 has completed the delete operation, the message DONE will momentarily appear on the display. The LED beside the EDIT key will switch off and the previous mode restored.

> **Note:** *When the delete function has completed, the "out" point will be set to the same location as the "in" point. This will prevent you from unintentionally removing another section of material.*

Slip

The slip function moves the audio forward or backwards from the marked "in" point to the current position. If the current position is beyond the "in" point, a section of blank audio is inserted ("Insert" on page 84), however, if the current position is before the "in" point, the material between the two points is deleted ("Delete" on page 86). The following diagram illustrates the slip function:



1) **Set the "in" point to mark the start of the audio you want to slip.**
See "Specifying the "in" Point and "out" Point" on page 27.

2) **Locate to the position you want to slip the audio to.**
Refer to the "Locate Functions" on page 69.

3) **Press the EDIT key to enter Edit Mode.**
The EDIT indicator will light up

4) **Use the JOG/SHUTTLE control to select the Slip function.**
You will see a display similar to the following:

5) **Use the TRACK REC(INPUT SELECT) keys to select the tracks you want to slip.**

6) **Press the STORE/ENT key to slip the tracks.**
When the DR8 has completed the slip operation, the message DONE will momentarily appear on the display. The LED beside the EDIT key will switch off and the previous mode restored.

11 Hard Disks

This chapter examines hard disks. Your DR8 should already have an optional internal hard disk installed, so you have everything you need to be able to start recording. If the hard disk has not yet been formatted, see "Formatting Disks" on page 95.

If you want to increase the available recording time by adding some more storage, read through this chapter to gain a better understanding of how the DR8 works with hard disks. When upgrading, you can keep the internal hard disk and just add an external hard disk via the SCSI-A bus. Alternatively, you could replace the internal hard disk with a larger one.

Only certain hard disks can be used with the DR8, so please consult your Akai professional dealer.

Choosing a Hard Disk

There are many types of hard disk currently available, each with slightly different specifications. Your Akai professional dealer will be able to provide you with information about which hard disks are best for use with the DR8. The following points should also be borne in mind:

- Is the hard disk fitted with two SCSI connectors? This will allow you to add more hard disks simply by connecting to the SCSI-A bus daisy chain.
- Are the SCSI connectors 50-way Amphenol types like the one on the rear panel of the DR8? Some manufacturers use different types of connector for SCSI connections. Although there are connection adaptors available, it is much simpler to standardize with one type.
- Can the SCSI ID number be set? Some of the earlier external disk drives were not fitted with SCSI ID switches. If each hard disk can be set to any SCSI ID, it allows greater flexibility when setting up a SCSI daisy chain.
- Does it have internal or external SCSI termination? Hard disks supplied with an external terminator can be connected at any position in a SCSI daisy chain. Some hard disks that have a fixed internal terminator always have to be connected at the end of the SCSI daisy chain, thus reducing setup flexibility. Especially awkward when you have two hard disks like this.
- Is the access time fast enough? Most currently available hard disks have relatively quick access times. However, some older drives can be quite slow. When the DR8 is playing and recording at the same time, the disk drive is continuously reading and writing data. If the hard disk's average seek time is slower than 10 ms, performance may be affected.
- Is the data transfer rate high enough? This is usually measured in Megabits per second (Mbit/s). A transfer rate slower than 2.0 MByte/s (16 Mbit/s) may affect the performance of the DR8.

Hard Disk Size

The total available recording time depends on the total size of all storage media — the internal hard disk and any external hard disks connected via the SCSI-A bus. As can be seen from the table below, the sampling frequency also affects the available time. Basically, with a higher sampling frequency, less time is available. This is because higher sampling frequencies record more samples onto disk. In turn, this provides a better audio bandwidth, but it also requires more storage space.

The "1 Track" column shows how many track minutes are available with some typical sizes of hard disk. A track minute indicates the total time available if only one track is recorded. The "8 Track" column shows the amount of time that is available to each track, and is just the "1 Track" column value divided by eight. For example, 1.2 GB at 48 kHz provides approximately 212 track minutes (3 hours 32 minutes), that is about 26.5 minutes per track. However, each track is not restricted to 26.5 minutes, and can use as much or as little of the available storage media as required until it has all been used. So, for example, one track may use 32 minutes, another track 23 minutes, and so forth.

Hard Disk Size	Available Minutes:Seconds (Approx.)					
	32 kHz		44.1 kHz		48 kHz	
	8 track	1 track	8 track	1 track	8 track	1 track
2 GB	66:25	531:20	48:12	385:33	44:17	354:18
1.2 GB	39:51	318:48	28:55	231:20	26:34	212:35
650 MB	21:35	172:41	15:40	125:18	14:24	115:08
330 MB	10:58	87:40	7:57	63:37	7:18	58:27
240 MB	7:58	63:46	5:47	46:16	5:19	42:31
128 MB	4:19	34:32	3:05	24:40	2:49	22:40
100 MB	3:19	26:34	2:25	19:16	2:13	17:42

Note: *There is no column for 44.056 kHz in the table above. You will find its disk utilization values are very close to 44.1 kHz.*

The DR8 can record and playback a maximum of 24 hours (23:59:59:00.0). It is not possible to record or playback beyond absolute time 24 hours (midnight 0:00).

SCSI

The DR8 uses the SCSI connection format for connecting external hard disks. Pronounced "scuzzy", SCSI (Small Computer System Interface) is often used for connecting computer peripherals such as hard disks, scanners, etc. It provides a relatively fast data transfer rate, making it ideal for digital audio applications.

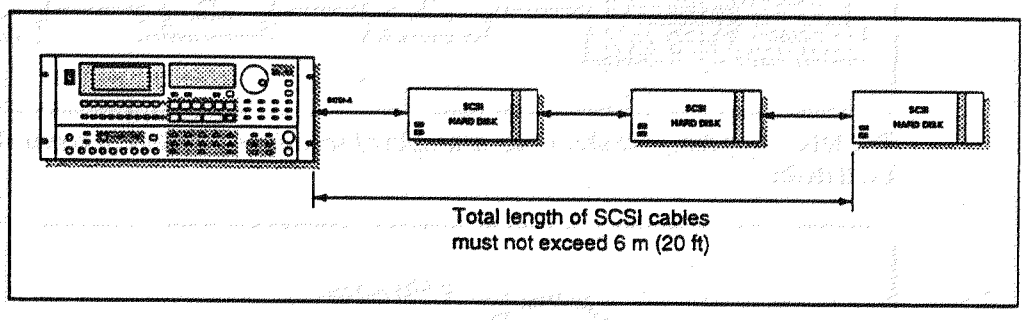
Up to eight devices can be connected in a SCSI daisy chain. One device acts as the controller, and the others as slaves. The controller can communicate with any slave device. Typically, the slave devices communicate with the controller only. In a DR8 system, the DR8 functions as the controller, writing to and reading from the connected slaves.

SCSI-A & SCSI-B

The DR8 has two SCSI buses: SCSI-A and SCSI-B. The SCSI-A bus is used to connect external hard disks for recording. The SCSI-B bus is for connecting to personal computers. The optional IB-801S SCSI-B board must be installed to use the SCSI-B bus.

SCSI Cables

Use only high-quality SCSI cables when connecting SCSI devices. Cables are available in a number of different lengths, however, you should pay particular attention to the total length of the SCSI daisy chain. It is not the length of each cable that is important, but the total length of all cables used in the daisy chain. The total length must not exceed 6 meters (20 ft.).

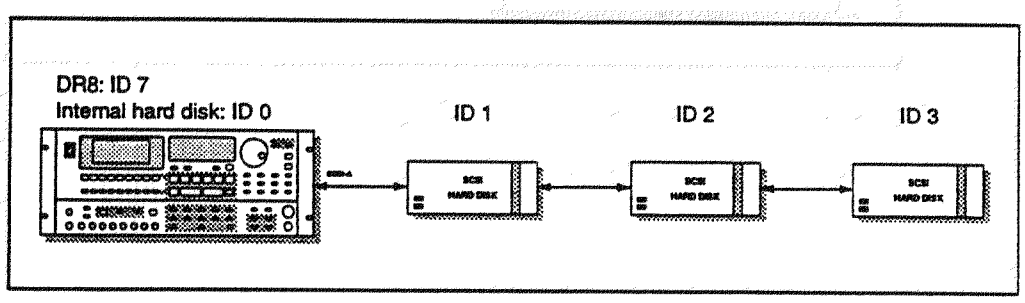


SCSI IDs

Each SCSI device in the SCSI daisy chain is assigned its own ID number. SCSI-A ID numbers can be set from 0 to 7. The DR8 itself uses ID 7, and the internal hard disk ID 0. Use ID numbers other than 0 and 7 for hard disks connected via SCSI-A.

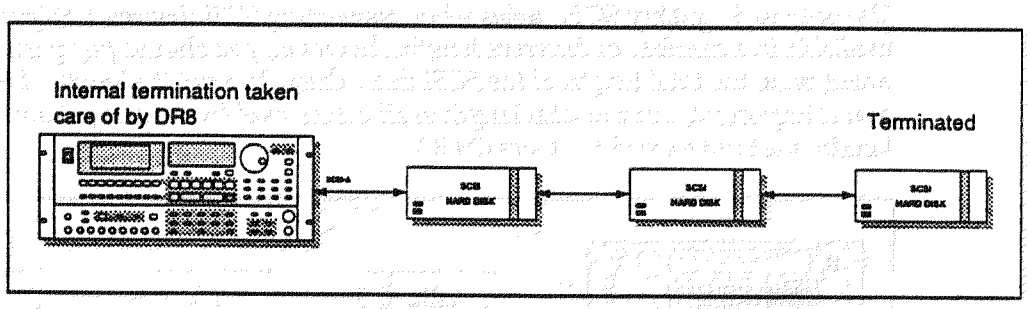
Note: *If you set an external hard disk's ID number to that used by the internal hard disk, the DR8 will not be able to detect an error, so no error message will appear. In this case, the DR8 may appear to work correctly, but recording will not be performed correctly, and existing material may be destroyed. You must be very careful when setting SCSI ID numbers.*

The following diagram shows how SCSI IDs should be set for a typical DR8 SCSI daisy chain:

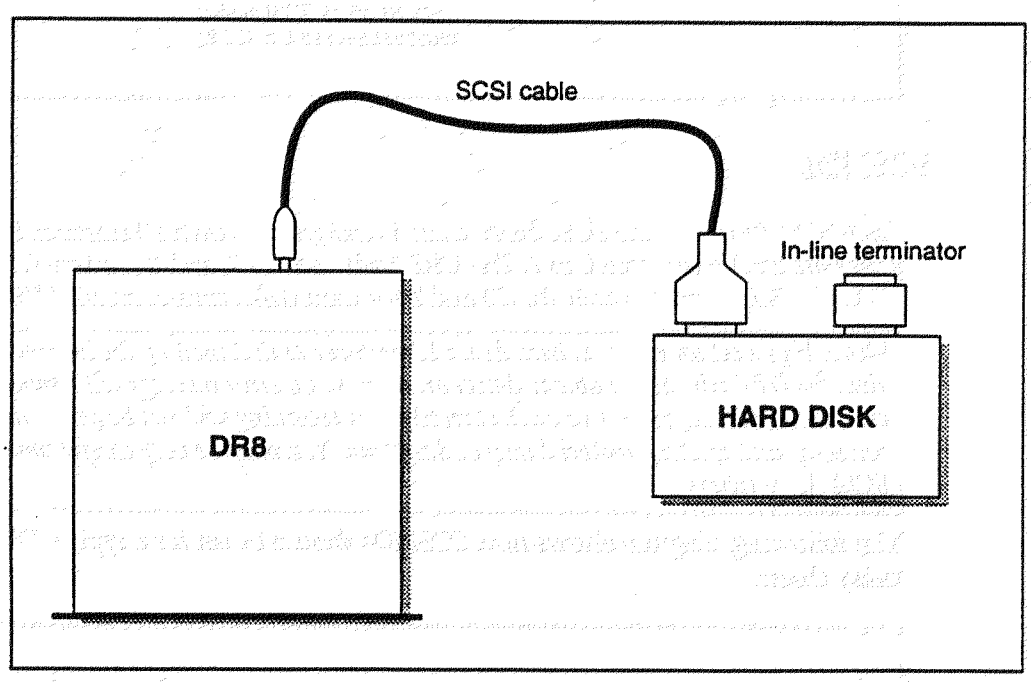


SCSI Termination

The ends of a SCSI daisy chain must be terminated correctly. Otherwise, data errors, system crashes, etc., may occur. Termination at the DR8 end of the chain is taken care of by the DR8. At the other end of the chain you must fit a terminator. Some SCSI devices have a terminator built-in. This type of device must always be connected at the end of the daisy chain. Other devices are supplied with an in-line type terminator that you must connect to the unused SCSI connector. The following diagram shows how a SCSI daisy chain should be terminated:



The following diagram shows an example of an in-line terminator connected to a hard disk:



Checking for Disks

To check the status of a hard disk connected to SCSI-A bus:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 1(DISK) key - numeric keypad.**
The message TIME will appear on the display.

3) **Use the JOG/SHUTTLE control to select the Disk function.**
You will see a display similar to the following:

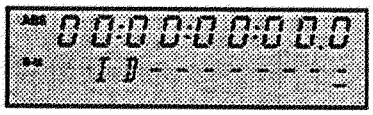
4) **Press the STORE/ENT key.**
The message SCANNING will momentarily appear on the display.

When the scan has completed, the DR8 will display the SCSI ID of all the connected hard disks, similar to the following:

This display indicates the DR8 found one disk at ID 0, the address of the internal hard disk.

Here are some other examples:

This display indicates the DR8 found one disk at ID 0, but it is not correctly formatted.



This display indicates the DR8 found no disks. It probably indicates that the disk at ID 0 is not connected properly.

If you have connected a hard disk, but its SCSI ID does not appear, make sure that all SCSI IDs are set correctly, all SCSI cables are connected correctly, and the hard disk is powered on.

External Hard Disk Operating Precautions

- Before connecting a hard disk, make sure that the DR8 and hard disk are powered off. If a hard disk is connected with its power on it could be damaged.
- Always power on the external hard disks before the DR8. Otherwise, the DR8 will not recognize them.
- When you connect a hard disk that has already been used for recording, for example, connected to another DR8 or connected then disconnected from the same DR8, erase all the material on the disk or format it before recording any new material.
- New unformatted disks can be connected to the DR8 quite safely, and will not be used until formatted. The letter "F" will appear on the display when the DR8 performs a hard disk search.
- Do not set an external hard disk's SCSI ID number to that used by the internal hard disk. Operation will be unpredictable and any recorded material may be destroyed. See "SCSI IDs" on page 91.
- Do not power off a hard disk while it is accessing data. When the BUSY indicator on the DR8 display is lit, it indicates that a hard disk is being accessed.
- Do not move or disturb a hard disk while it is powered on, especially when it is accessing data.
- Hard disks should be mounted horizontally or vertically when in use. See the hard disk's operating manual for more details.

Formatting Disks

New hard disks must be formatted before you can use them for recording. Formatting prepares a disk for storing digital audio data. External disks and the internal hard disk are identified by their SCSI ID. Make sure that you know the SCSI ID of the disk you want to format before starting this procedure.

You can also use this function to format existing disks.

To format a disk:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 1 (DISK) key - numeric keypad.**
The message TIME will appear on the display.

3) **Use the JOG/SHUTTLE control to select the Format function.**
You will see a display similar to the following:

4) **Press the STORE/ENT key.**
The message SCSI ID 0 will appear on the display.

5) **Use the JOG/SHUTTLE control to select a SCSI ID.**
The selected SCSI ID should correspond with that of the disk that you want to format.

> **Caution:** *If you have a number of disks connected, make sure that you select the correct SCSI ID.*

6) **Press the STORE/ENT key.**
The message SURE ?? will appear on the display.

> **Caution:** *When you format a disk, ANY EXISTING DATA WILL BE ERASED – PERMANENTLY. Please be certain that this is what you intend to do. Back up any data that you want to keep before formatting. See "Backup and Restore" on page 100.*

7) **If you are sure, press the STORE/ENT key again to start formatting.**
As the DR8 formats the disk, the message VERIFYING alternating with the message GOOD 00000 (indicating the current disk block number) will appear on the display. The disk block numbers count up as the disk is formatted.

Disk formatting does take time. The larger the disk, the longer it will take.

If you decide you do not want to format the disk, press the ESCAPE key to cancel the format function

When the disk format is complete, the message DONE will momentarily appear on the display. The previous mode will be restored.

> **Note:** *If the DR8 was unable to format the drive, because, for example, you selected a SCSI ID that had no corresponding disk, the message FAIL will appear on the display.*

Erasing Disks

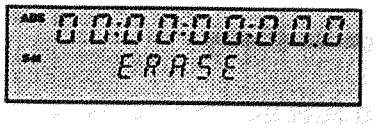
This function allows you erase all material on a disk before starting a new session. You may want to back up the existing material for future use before proceeding. See "Backup and Restore" on page 100.

To erase a disk:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 1(DISK) key - numeric keypad.**
The message TIME will appear on the display.

3) **Use the JOG/SHUTTLE control to select the Erase function.**
You will see a display similar to the following:



4) **Press the STORE/ENT key.**
The message SCSI ID 0 will appear on the display.

5) **Use the JOG/SHUTTLE control to select a SCSI ID.**
The selected SCSI ID should correspond with that of the disk that you want to erase.

> **Caution:** *If you have a number of disks connected, make sure that you select the correct SCSI ID.*

6) **Press the STORE/ENT key.**
The message SURE ?? will appear on the display.

> **Caution:** *This function erases any existing data from the disk– PERMANENTLY. Please be certain that this is what you intend to do. Back up any data that you want to keep before erasing. See "Backup and Restore" on page 100.*

7) **If you are sure, press the STORE/ENT key again to start erasing.**
As the DR8 erases the disk, the message ERASING will appear on the display.

Erasing the disk does take time. The larger the disk, the longer it will take.

If you decide you do not want to erase the disk, press the ESCAPE key to cancel the erase function

When the disk erasure is complete, the message DONE will momentarily appear on the display. The previous mode will be restored.

> **Note:** *If the DR8 was unable to erase the drive, the message FAIL will appear on the display.*

Aligning Disks

This function frees up disk space taken up by the editing functions.

Editing and recording on the DR8 is non-destructive. This means when you record new material over a location that has existing data, the DR8 does not erase the existing material. Instead, it allocates space elsewhere on the hard disk to store the new material and marks the previous location as overwritten. The Undo and Take functions exploit this feature to allow you to choose which portion of material you want to keep. In order that your DR8 operate as efficiently as possible, it is necessary to leave these discarded edits on the hard drive.

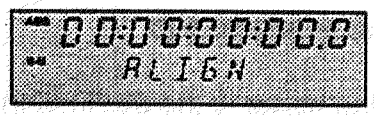
Occasionally, you will need to remove this unnecessary data to free some disk space so that you can continue recording.

To align the data:

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 1(DISK) key – numeric keypad.**
The message TIME will appear on the display.

3) **Use the JOG/SHUTTLE control to select the Align function.**
You will see a display similar to the following:



4) **Press the STORE/ENT key.**
The message SCSI ID 0 will appear on the display.

5) **Use the JOG/SHUTTLE control to select a SCSI ID.**
The selected SCSI ID should correspond with that of the disk that you want to align.

6) **Press the STORE/ENT key.**
The message SURE ?? will appear on the display.

> **Note:** *This function will only erase the discarded remnants of the non-destructive editing and recording processes from the hard disk. You cannot access this data — it is just wasting disk space.*

7) Press the STORE/ENT key again to start aligning.
As the DR8 aligns the disk, the message BUSY will appear on the display.

When the align function is complete, the message DONE will momentarily appear on the display. The previous mode will be restored.

Copying Disks

You can copy the contents of a hard disk to another disk connected to the SCSI-A bus.

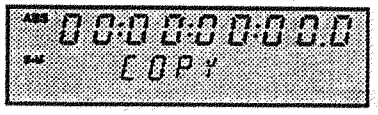
> **Note:** *To prevent any loss of data, you should use a destination hard disk that is larger than your source disk.*

To copy the disk:

1) Press the SUB-MENU key.
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) Press the 1 (DISK) key – numeric keypad.
The message TIME will appear on the display.

3) Use the JOG/SHUTTLE control to select the Copy function.
You will see a display similar to the following:



4) Press the STORE/ENT key.
The message IDO -> IDO will appear on the display. The first SCSI ID is the copy source, the second is the destination.

5) Rotate the inner JOG wheel to select the source SCSI ID.

6) Use the outer SHUTTLE control to move the cursor to the destination SCSI ID.
See "Cursor" on page 25.

7) Rotate the inner JOG wheel to select the destination SCSI ID.

> **Warning:** *Make certain you select the correct SCSI ID for both the source and destination disks. If you get the two mixed up, you could lose all your data.*

8) Press the STORE/ENT key.
The message SURE ?? will appear on the display.

9) Press the STORE/ENT key again to start aligning.
As the DR8 copies the disk, the message COPYING will appear on the display.

When the copy function is complete, the message DONE will momentarily appear on the display. The previous mode will be restored.

> **Note:** *If you selected a source or destination SCSI ID that had no corresponding disk, the message FAIL will appear on the display.*

Disk Copy Notes

You cannot playback the recorded data on the DR8 if you have changed the disk SCSI ID. See "SCSI IDs" on page 91.

When the DR8 records data to a hard drive, it includes the SCSI ID in the data. If you copy data from one disk to another (for example, you copy data from disk ID 0 to disk ID 1) the data is copied with the destination disk SCSI ID (that is, the data is recorded as being from disk ID 1).

Re-load Utility

If you have connected multiple hard disks to the SCSI-A connector, you can use the re-load utility to copy your data back to the internal hard drive.

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 4(UTILITY) key - numeric keypad.**
The message RE-LOAD will appear on the display.

3) **Press the STORE/ENT key.**
The message SCSI ID 0 will appear on the display.

4) **Use the JOG/SHUTTLE control to select a SCSI ID.**
The selected SCSI ID should correspond with that of the source disk.

5) **Press the STORE/ENT key.**
The data will be copied back to the internal hard drive (disk ID 0).

12 Backup and Restore

This chapter explains how to back up and restore material recorded on the DR8. You can back up to a DAT recorder with digital I/O.

Backup

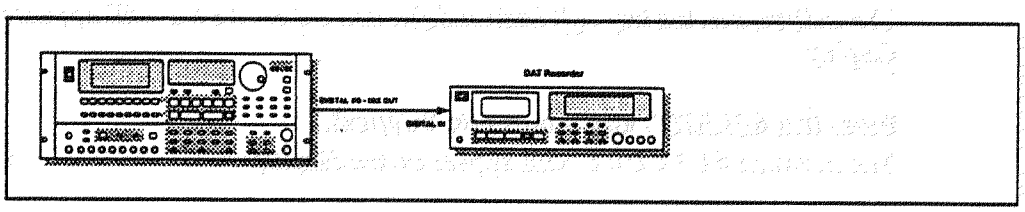
Backup to DAT

To use a DAT recorder for back up, it must have digital inputs and outputs. A professional DAT machine equipped with XLR connectors is preferable.

> **Note:** *Before backing up to a DAT recorder, make sure that the volume controls on any equipment connected to the DAT recorder's outputs are turned fully down. The sound output by the DAT recorder during backup may damage your loud speakers.*

DAT Backup Connection

Plug a cable into the DIGITAL I/O - MASTER OUT connection. Fasten the other end to the appropriate connection on the DAT recorder:



You must set the DAT player to match the sampling frequency of the data you want to back up. Refer to the manual that came with your DAT recorder for the details of its operation.

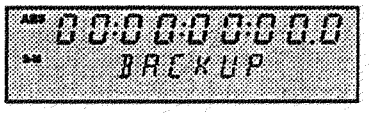
Creating a Backup

Back up all the data on the internal hard disk.

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text `SUB-MENU` will appear on the display.

2) **Press the 1(DISK) key - numeric keypad.**
The message `TIME` will appear on the display.

3) **Use the JOG/SHUTTLE control to select the Backup function.**
You will see a display similar to the following:



4) **Press the STORE/ENT key.**
The message ENTIRE 0 will appear on the display.

5) **Use the JOG/SHUTTLE control to select the disk you want to back up.**

6) **Press the STORE/ENT key.**
The DR8 will display the necessary time.

> **Note:** *The display time is approximate. The actual back up time will be slightly different. The DR8 V1.0 cannot perform the backup if the time is greater than 3 hours (Maximum DAT tape length is 180 minutes). In this case, you must use the edit functions to remove any unnecessary sections (see "Editing" on page 77) and then use the align function to reduce the data (see "Aligning Disks" on page 97).*

7) **Press the STORE/ENT key again.**
The flashing message READY ?? will appear on the display.

To back up your data to DAT, start recording on the DAT machine.

8) **Once you are ready, press the STORE/ENT key again to start the backup.**
As the DR8 backs up the disk, the message BUSY will appear on the display.

When the back up is complete, the message DONE will momentarily appear on the display. The previous mode will be restored.

Aborting the Backup Function

If at any time during the back up function you want to cancel this procedure, just press the ESCAPE key. The message ABORT will appear on the display. Press any key to continue.

> **Warning:** *DO NOT attempt to load an incomplete back up. You could end up losing ALL of your data.*

> **Note:** *The DR8 V1.0 cannot perform partial back ups. You can only back up the entire contents of the hard disk.*

> **The DR8 cannot verify the condition or ability of the connected DAT recorder. Therefore, AKAI cannot guarantee the quality or reliability of your back ups.**

Restore

Before you restore your back up to the hard disk, you must delete all the data from the disk with the format function (see "Formatting Disks" on page 95). Back up any data that you want to keep before you do this (see"Backup" on page 100).

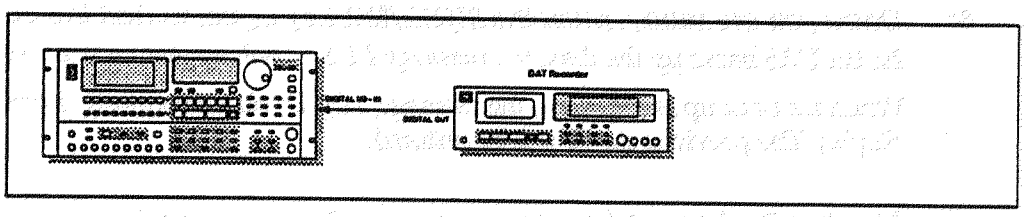
Loading from DAT

Insert your write-protected back up tape into the DAT machine and set it up for playback.

> **Note:** *Before loading from a DAT recorder, make sure that the volume controls on any equipment connected to the DAT recorder's outputs are turned fully down. The sound output by the DAT recorder while loading may damage your loud speakers.*

DAT Loading Connection

Plug a cable into the DIGITAL I/O - IN connection. Fasten the other end to the appropriate connection on the DAT recorder:



Restoring the Backup

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 1(DISK) key - numeric keypad.**
The message TIME will appear on the display.

3) **Use the JOG/SHUTTLE control to select the Restore function.**
You will see a display similar to the following:

4) **Press the STORE/ENT key.**
The message RESTORE 0 will appear on the display.

5) **Press the STORE/ENT key.**

6) **Use the JOG/SHUTTLE control to select the disk you want to restore to.**

7) **Press the STORE/ENT key.**

The flashing message SURE ?? will appear on the display.

To restore your data from DAT, start playback on the DAT machine. As soon as the DR8 starts to correctly receive data from the DAT machine, the message BUSY will appear on the display.

When the back up is complete, the message DONE will momentarily appear on the display. The previous mode will be restored.

Restore Notes

If at any time during the restore function you want to cancel this procedure, just press the ESCAPE key. The message ABORT will appear on the display. Press any key to continue.

13 Synchronization

This chapter explains how to synchronize the DR8 to a variety of different devices.

With the optional IB-802T SMPTE reader/generator board installed, the DR8 can act as a master or slave to SMPTE/EBU timecode. Using the optional IB-803M MIDI interface board, the DR8 can synchronize to MIDI clock (SPP), MIDI timecode (MTC), or MIDI machine control (MMC).

SMPTE/EBU Synchronization

SMPTE/EBU timecode is an industry standard developed to allow synchronization between two film or video devices. It has since been adopted by the audio industry, initially for audio to video synchronization, but subsequently to synchronize many different devices.

IB-802T SMPTE Reader/Generator Board

To use SMPTE/EBU synchronization, you must install the optional IB-802T SMPTE reader/generator board. Please contact your Akai professional dealer for details.

If you are using multiple DR8s for synchronization (using the REMOTE connection and AL-X50 cables), be sure to install the IB-802T SMPTE reader/generator board on the master device. Installing it on the slave units will cause improper operation.

> **Note:** *The remote connector is not functional on the DR8 V.1.0. It is not yet possible to synchronize multiple DR8s.*

Connection and Setup

1) Connect the DR8 to the external device.

Using SMPTE/EBU timecode cables, connect the SMPTE IN jack of the IB-802T SMPTE reader/generator board to the respective connector on the external device. For timecode output, connect a cable to the SMPTE OUT jack.

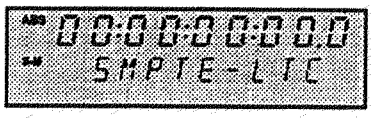
Depending on the external device supplying the timecode, you may need to use an adapter cable such as an XLR-type to stereo phone plug.

2) Press the SUB-MENU key.

The indicator in the key will flash and the text `SUB-MENU` will appear on the display.

3) Press the SYNC(SYNC) key.

You will see a display similar to the following:



4) Use the JOG/SHUTTLE control to select the type of sync mode.

Sync Mode	Display
SMPTE/EBU	SMPTE-LTC
MIDI Clock	MIDI-SPP
MIDI Timecode	MIDI-MTC
MIDI Machine Control	MIDI-MMC
Remote	REMOTE

In this case, select SMPTE-LTC to use SMPTE/EBU synchronization.

5) Press the STORE/ENT key to store your choice.

6) Use the JOG/SHUTTLE control to select the mode status.

Select OFF, MASTER, or SLAVE. The default is OFF. If you select the default, the DR8 returns to the previous mode.

7) Press the STORE/ENT key.

The display will show the current timecode type.

8) Use the JOG/SHUTTLE control to select a timecode type.

Timecode Type	Display
24 frames/sec	SMPTE 24F
25 frames/sec	EBU 25F
30 frames/sec	SMPTE 30F
30 drop frames/sec	SMPTE 30D
29.97 frames/sec	SMPTE29.97
29.97 drop frames/sec	SMPTE29.97D

9) Press the STORE/ENT key to store your choice.

SMPTE-LTC Slave Synchronization

1) **Press the SYNC key to turn on the synchronization function.**
The green LED beside the key will light.

2) **Press the Play ▷ key.**
The DR8 will locate to the external timecode position immediately and synchronization will start.

Synchronization with an Offset

During SMPTE-LTC slave synchronization, the DR8 synchronizes to the received timecode and that time value is displayed. Using the relative time display allows timecode-synchronized operation with an offset.

When required, stop the DR8, then set an offset. See "Setting a Relative Time Offset" on page 75.

Note: *If the timecode signal is interrupted during SMPTE-LTC slave synchronization, the DR8 will stop playback until the signal is again received.*

SMPTE-LTC Master Synchronization

1) **Press the SYNC key to turn on the synchronization function.**
The green LED beside the key will light.

2) **Press the Play ▷ key or the Play ▷ and REC ● keys simultaneously.**
During playback or recording, the DR8 will output the selected SMPTE/EBU timecode from the SMPTE OUT jack of the IB-802T SMPTE reader/generator board.

Output level: 4.0V peak to peak - unbalanced.

Master Synchronization Notes

Although the Fast Forward and Rewind keys will function correctly during synchronization to SMPTE/EBU timecode, the timecode information is not transmitted. Therefore, the connected external devices are stopped during these operations.

If the timecode signal is interrupted during SMPTE-LTC master synchronization, the slave units will stop playback until the signal is again received.

If the SMPTE/EBU timecode synchronization operation continues over 24:00 absolute time (midnight), the sound data will be momentarily interrupted.

MIDI Synchronization

The DR8 can function as a clock master to synchronize external MIDI devices, such as a sequencer. The DR8 can read and use MIDI timecode (MTC), MIDI Machine Control (MMC), and MIDI Clock (SPP) signals. You can also use MMC and MTC software to control the DR8 externally.

IB-803M MIDI Interface Board

To use MIDI synchronization, you must install the optional IB-803M MIDI interface board. Please contact your Akai professional dealer for details.

If you are using multiple DR8s for synchronization (using the REMOTE connection and AL-X50 cables), be sure to install the IB-803M MIDI interface board in the master device. Installing it in the slave units will cause improper operation.

> **Note:** *The remote connector is not functional on the DR8 V.1.0. It is not yet possible to synchronize multiple DR8s.*

Connection and Setup

1) Connect the DR8 to the external MIDI device.

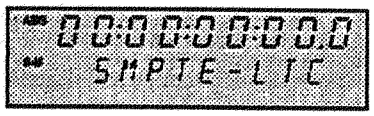
Using MIDI cables, connect the MIDI OUT and MIDI IN terminals of the IB-803M MIDI interface board to the respective MIDI IN and MIDI OUT terminals on the external MIDI device.

2) Press the SUB-MENU key.

The indicator in the key will flash and the text SUB-MENU will appear on the display.

3) Press the SYNC(SYNC) key.

You will see a display similar to the following:



4) Use the JOG/SHUTTLE control to select the type of sync mode.

Sync Mode	Display
SMPTE/EBU	SMPTE-LTC
MIDI Clock	MIDI-SPP
MIDI Timecode	MIDI-MTC
MIDI Machine Control	MIDI-MMC
Remote	REMOTE

In this case, select MIDI-SPP, MIDI-MTC, or MIDI-MMC.

5) Press the STORE/ENT key to store your choice.

6) Use the JOG/SHUTTLE control to select the status of the sync mode.
Select OFF, MASTER, or SLAVE. The default is OFF. If you select the default, the DR8 returns to the previous mode.

> **Note:** *With the DR8 V.1.0, it is not possible to slave to MIDI timecode (MTC) or clock (SPP).*

7) Press the STORE/ENT key to store your choice.

8) If you selected MIDI-MTC, use the JOG/SHUTTLE control to select the timecode type.

Timecode Type	Display
24 frames/sec	SMPTE 24F
25 frames/sec	EBU 25F
30 frames/sec	SMPTE 30F
30 drop frames/sec	SMPTE 30D
29.97 frames/sec	SMPTE29.97
29.97 drop frames/sec	SMPTE29.97D

9) Press the STORE/ENT key.
The DR8 will store the selected synchronization mode and status.

MIDI timecode synchronization

1) **Press the SYNC key to turn on the synchronization function.**
The green LED beside the key will light.

2) **Press the Play ▷ key or the Play ▷ and REC ● keys simultaneously.**
During playback or recording, the DR8 will output a MIDI timecode signal corresponding to the selected SMPTE/EBU timecode type from the MIDI OUT terminal of the IB-803M MIDI interface board.

MIDI clock synchronization

1) **Press the SYNC key to turn on the synchronization function.**
The green LED beside the key will light.

2) **Press the Play ▷ key or the Play ▷ and REC ● keys simultaneously.**
During playback or recording, the DR8 will output a MIDI clock signal corresponding to the programmed Tempo Map (see "Creating a Tempo Map" on page 115) from the MIDI OUT terminal of the IB-803M MIDI interface board.

MIDI Synchronization Notes

Although the Fast Forward and Rewind keys will function correctly during synchronization to MIDI, the MIDI timecode information and MIDI clock commands are not transmitted. Therefore, the connected external devices are stopped during these operations.

If you operate the DR8 Play and Stop keys (Play → Stop → Play → Stop → Play) very quickly during MIDI clock synchronization, the external MIDI device may not be able to respond quickly enough and the playback sound may slip.

About MIDI Machine Control

The MIDI Exclusive Command and MIDI machine Control specifications of the DR8 conform to the MIDI Machine COntrol RP (Recommended Practice) Version 1.00. This allows you to control the DR8 using the MMC protocol. Connect the external controller to the MIDI IN and MIDI OUT terminals of the IB-803M MIDI interface board installed in your DR8.

Setting a device ID number on the DR8 is all that is required to allow the use of MMC. No mode settings are required. The DR8 can be access at anytime, except in special conditions (while an edit is in progress, etc.)

Match the MIDI device ID setting to that of the external controller. If the external controller does not have an ID setting, any ID number can be set on the DR8.

14 Song Mode

This chapter explains how to create songs, beat maps, and tempo maps on the DR8 using the Song Mode functions. These functions are used when you are using MIDI to synchronize the DR8 to an external sequencer. See "MIDI Synchronization" on page 107.

Note: *To use MIDI synchronization, you must install the optional IB-803M MIDI interface board. Please contact your Akai professional dealer for details.*

Tempo Map

When you use the DR8 as the MIDI master, the tempo of the connected MIDI slave sequencer is determined by the rate of the MIDI clock. Therefore, you must first create a tempo map on the DR8, so that the sequencer plays at the correct tempo. If you use the DR8 as a MIDI slave, it needs to have data about the song tempo in order to follow the MIDI clock data from the external MIDI master sequencer.

If a song's tempo remains the same throughout, the tempo map will have only one entry. That entry will be at the beginning of the song and will specify the song's tempo. If the song contains any tempo changes, these changes will have to be entered into the tempo map.

Initially, the first entry in the tempo map is set to 120 bpm.

Beat Map

As well as setting the tempo, you must also specify the song's beat (time signature). For example, if the DR8 counts in 4/4 time while the sequencer plays in 3/4, one beat per bar will slip.

Just like tempo, if a song's beat remains the same throughout, you only have to specify it once at the beginning of the song. However, if the beat of the song changes, these changes will have to be entered into the beat map.

Initially, the first entry in the beat map is set to 4/4.

Tempo and Beat Map

Before creating a tempo or beat map, it's a good idea to jot them down on paper first. This way you'll also have a hard copy for quick reference. The following tables show how you could layout a beat map and tempo map.

Example Beat Map

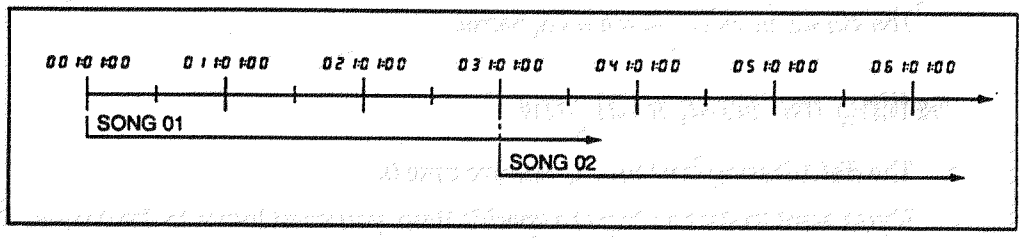
Step	Beat	Bar No.
01 (initial)	4/4	0
02	3/4	9
03	4/4	17
04		

Example Tempo Map

Step	Tempo	Bar No.
001 (initial)	120	0
002	122	9
003	120	17
004		

Song

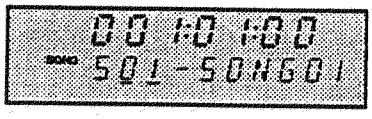
A song contains various data, such as a tempo map, a beat map, and the start point. You can create multiple songs on the DR8. However, because all the songs will exist on the same time axis, you need to leave enough time between them. For example, assume that Song 01 starts at 00 :0 :00 (0 minute - Absolute time), and Song 02 starts at 03 :0 :00 (1 minute - Absolute time). If the length of Song 01 exceeds one minute, part of it will overlap the beginning of Song 02. You may want to set the start time of Song 02 at 1 hour - Absolute time to give enough time between the songs.



Creating a Song

Selecting a song

1) **Press the SONG key.**
The green LED beside the key will light up. The display will indicate a song number and title, similar to the following:



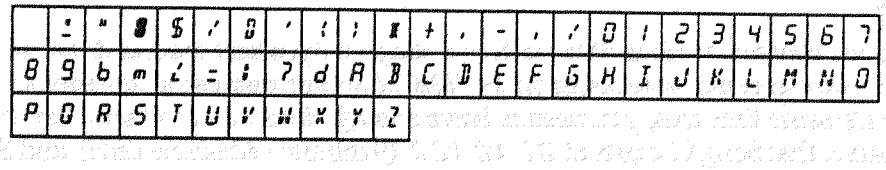
2) **Use the JOG/SHUTTLE control to select a song number.**
You can select from song S01 to song S10.

Name the song

You can give a song a name consisting of up to six characters.

1) **Rotate the outer SHUTTLE control to move the cursor to the the song name.**
See "Cursor" on page 25.

2) **Rotate the inner JOG wheel to select a character.**
Select a character from the following character set:



3) **Repeat the above procedure until you have completed the name.**
If you do not want to change the name, you can omit the above steps.

4) **Press the STORE/ENT key to store the name.**
The cursor must be on the song name.

Setting the song start time

The default song start time is relative time 0.

If you want to start a song at a specific time, you must locate to the desired time. See "Locate Functions" on page 69. Once you have located to the start time, press the RESET key. The time display shows 00 1:0 1:00. This is a Relative time setting.

You can also set a value using the Absolute/Relative time display. See "Setting Relative Time to Zero" on page 75.

> **Tip:** *To see the Absolute/Relative time display when the DR8 is in Song Mode, press the TIME D key.*

In order to operate the DR8 in offset sync with an external device, fine tune the start point to set the offset amount. See "Setting a Relative Time Offset" on page 75.

Setting the Initial Beat

1) **Press the BEAT key.**
The green LED beside the key will light.

2) **Press the STORE/ENT key to select the beat.**
The beat data will be underlined: - - BT - 4/4 -

3) **Use the JOG/SHUTTLE control to specify a new beat.**
The beat can be set from 1/4 time to 32/32 time.

4) **Press the STORE/ENT key.**
The new beat setting will be stored.

5) **Press the SONG key to cancel the beat function.**

Setting the Initial Tempo

1) **Press the TEMPO key.**

2) The green LED beside the key will light. **Press the STORE/ENT key to select the tempo.**
The tempo data will be underlined: - - - BPM 120.0

3) **Use the JOG/SHUTTLE control to specify a new tempo.**
The tempo can be set from 30 to 300 bpm.

4) **Press the STORE/ENT key.**
The new tempo setting will be stored.

5) **Press the SONG key to cancel the tempo function.**

Creating a Beat Map

Inserting Entries into the Beat Map

1) **Press the BEAT key.**

2) **Press the Play ▷ key to play the song.**
You can also use the Fast Forward ▷▷ or Rewind ◁◁ keys to locate to specific points in the song.

3) **Press the STORE/ENT key at the desired time.**
The cursor will underline the beat data.

4) **Use the JOG/SHUTTLE control to select a new beat.**

5) **Press the STORE/ENT key to enter the step.**
Repeat from step 3 to create the beat map.

> **Note:** *You can set the beat for each bar, but the smallest resolution is one bar. If you set the beat in the middle of a bar, the change will be entered at the beginning of the bar.*

6) **Press the SONG key to cancel the beat function.**

Checking the Beat Map

1) **Press the BEAT key.**

2) **Rotate the JOG/SHUTTLE control to view the stored steps of your beat map.**

3) **Press the SONG key to cancel the beat function.**

Deleting Entries from the Beat Map

To delete an entry from the beat map:

1) **Press the BEAT key.**

2) **Rotate the JOG/SHUTTLE control to select a map entry.**

3) **Press the REC ◻ key.**
The map entry will be deleted and the subsequent step numbers will be updated.

4) **Press the SONG key to cancel the beat function.**
The initial entry cannot be deleted.

Creating a Tempo Map

You must create the beat map before creating a tempo map.

Inserting Entries into the Tempo Map

1) **Press the TEMPO key.**

2) **Press the Play ▷ key to play the song.**
You can also use the Fast Forward ▷▷ or Rewind ◁◁ keys to locate to specific points in the song.

3) **Press the STORE/ENT key at the desired time.**
The cursor will underline the tempo data.

4) **Use the JOG/SHUTTLE control to select a new tempo.**

5) **Press the STORE/ENT key to enter the step.**
Repeat from step 3 to create the tempo map.

> **Note:** *The resolution for the tempo map is much finer than the beat map. You can set a tempo change for each clock.*

6) **Press the SONG key to cancel the tempo function.**

Checking the Tempo Map

1) **Press the TEMPO key.**

2) **Rotate the JOG/SHUTTLE control to view the stored steps of your tempo map.**

3) **Press the SONG key to cancel the tempo function.**

Deleting Entries from the Tempo Map

To delete an entry from the tempo map:

1) **Press the TEMPO key.**

2) **Rotate the JOG/SHUTTLE control to select a map entry.**

3) **Press the REC ● key.**
The entry will be deleted.

4) **Press the SONG key to cancel the tempo function.**
The initial entry cannot be deleted.

15 Other Functions

System Set up

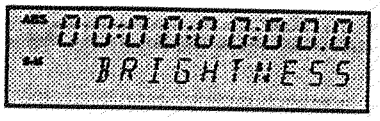
These functions allow you to adjust the display brightness, drop the sub-frame notation, and assign MIDI controller numbers.

Adjusting the Display Brightness

This function adjusts the brightness of the Peak Level meters and Time and Status display.

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 3(SET UP) key – numeric keypad.**
You will see a display similar to the following:



3) **Press the STORE/ENT key.**
The message BRIGHT 4 will appear on the display.

4) **Use the JOG/SHUTTLE control to adjust the brightness.**
The range is 0 (dim) to 7 (bright). The default value is 4.

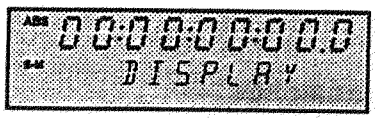
Changing the Time Display Notation

By default, the DR8 displays the sub-frame number when the time display is absolute or relative time (see "Time Display" on page 74). This function allows you to turn that extra digit off.

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 3(SET UP) key – numeric keypad.**

3) **Use the JOG/SHUTTLE control to select the Display function.**
You will see a display similar to the following:



4) **Press the STORE/ENT key.**
The message SUBFRM ON will appear on the display.

5) **Use the JOG/SHUTTLE control to change the value.**
The default is to display the sub-frame notation. After you change the value, you will see a display similar to the following:

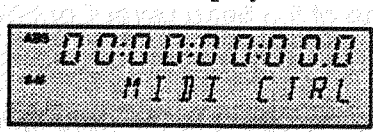
Note the absence of the decimal digit.

Assigning the MIDI Controllers

1) **Press the SUB-MENU key.**
The indicator in the key will flash and the text SUB-MENU will appear on the display.

2) **Press the 3(SET UP) key – numeric keypad.**

3) **Use the JOG/SHUTTLE control to select the MIDI Controller functions.**
You will see a display similar to the following:



4) **Press the STORE/ENT key to enter the MIDI Controller functions.**

Setting the Mute Controller

1) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The mute controller data will be underlined: MUTE nOFF. See "Cursor" on page 25.

2) **Rotate the inner JOG wheel to select a controller number.**
The range is OFF or controller number 000 to 127. The default is OFF.

Setting the Level Controller

1) **Rotate the inner JOG wheel to select the Level Controller function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The level controller data will be underlined: LEVEL n007.

3) **Rotate the inner JOG wheel to select a controller number.**
The range is OFF or controller number 000 to 127. The default is 007.

> Note: *MIDI controller number 7 is by convention the main volume controller.*

Setting the Pan Controller

1) **Rotate the inner JOG wheel to select the Pan Controller function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The pan controller data will be underlined: PAN nOIO.

3) **Rotate the inner JOG wheel to select a controller number.**
The range is OFF or controller number 000 to 127. The default is 010.

> Note: *MIDI controller number 10 (A_{16} [hexadecimal]) is by convention the pan controller.*

Setting the Send Level Controllers

The DR8 has two effect send channels, SEND1 and SEND2. You can set a controller for each channel.

1) **Rotate the inner JOG wheel to select one of the Send Level Controller functions.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The send level controller data will be underlined: SEND1 nOFF. This example shows the "SEND1" controller function.

3) **Rotate the inner JOG wheel to select a controller number.**
The range is OFF or controller number 000 to 127. The default is OFF for both send channels.

Setting the Bus Controller

1) **Rotate the inner JOG wheel to select the Bus Controller function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The bus controller data will be underlined: BUS nOFF.

3) **Rotate the inner JOG wheel to select a controller number.**
The range is OFF or controller number 000 to 127. The default is OFF.

Setting the Master Controller

1) **Rotate the inner JOG wheel to select the "MASTR" (Master) Controller**

function.

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The master controller data will be underlined: MASTR nOFF.

3) **Rotate the inner JOG wheel to select a controller number.**
The range is OFF or controller number 000 to 127. The default is OFF.

Setting the MIDI Channel

1) **Rotate the inner JOG wheel to select the "PC-SNAP" (MIDI Channel) function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The MIDI channel data will be underlined: PC-SNAPOFF.

3) **Rotate the inner JOG wheel to select a MIDI channel.**
The range is OFF, channel number 01 to 16, or OM (Omni). The default is OFF.

Setting the Device ID

1) **Rotate the inner JOG wheel to select the "DEV-ID" (Device ID) function.**

2) **Rotate the outer SHUTTLE control to move the cursor to the data item.**
The data will be underlined: DEV-ID 00.

3) **Rotate the inner JOG wheel to select the Device ID.**
The range is 00_{16} (hexadecimal) to $7E_{16}$. The default is 00_{16}.

SCMS

Pronounced "scums", SCMS (Serial Copy Management System) is a protection system designed to stop multiple digital copying of copyrighted material. SCMS applies to all CD players and consumer type DAT, MD, and DCC recorders. Basically, it prevents second-generation digital copies being made. It has no effect when analog connections are used.

When the DR8 receives a digital signal that contains SCMS, it will not prevent the DR8 from recording. The digital signal will be recorded without the SCMS.

If you are recording material that is protected by copyright from any source, you must have the permission of the copyright owner before you use it.

There are no restrictions on the use of copyright free material.

Akai cannot accept any responsibility for breach of copyright law.

Appendix

Specifications

Digital Audio Format	16-bit linear PCM			
Simultaneous Recording	8 tracks			
Audio Frequency Response	30 ~ 22 kHz ±1.0 dB (FS @ 48 kHz)			
A/D Conversion	18-bit 64-times oversampling 5th ΔΣ modulation			
D/A Conversion	Advanced 1 bit, 18-bit 8-times oversampling			
Dynamic Range	Greater than 96 dB			
Distortion	Less than 0.05% (1 kHz, full scale –15 dB)			
Channel Crosstalk	Greater than 90 dB (1 kHz, FS @ 48 kHz)			
Wow & Flutter	Immeasurable			
Recording Media	Optional internal or external hard disk. Model DR8HD is shipped with an internal hard drive.			
Sampling Rates	48 kHz, 44.1 kHz, 44.056 kHz, 32 kHz			
Recording Time - 1 GB hard disk (total recording time)	FS @ 48 kHz	3 hours 1 minute (approx.)		
	FS @ 44.1 kHz/44.056 kHz	3 hours 17 minutes (approx.)		
	FS @ 32 kHz	4 hours 32 minutes (approx.)		
Display	Custom FLD - 7-segment Time display, 14-segment Message display, plus indicators			
Peak Level Meter	20-segment FLD bars (Channels 1 ~ 8, SEND 1/2, BUS L/R, MASTER)			
Analog Inputs x8	6.3 Ømm Stereo phone jack (Balanced/unbalanced connection)			
	Input gain switch	HIGH	MID	LOW
	Nominal input	-36 dBu	-16 dBu	+4 dBu
	Maximum input	-20 dBu	0 dBu	+20 dBu
	Impedance	52 kΩ		
Analog Outputs x8 Analog Master Output (LxR) Aux Send x2	6.3 Ømm Stereo phone jack (Balanced/unbalanced connection)			
	Output gain switch	HIGH	LOW	
	Nominal output	+4 dBu	-10 dBu	
	Maximum output	+18 dBu	+4 dBu	
	Impedance	330 Ω		
	0 dBu = 0.775 Vrms, Load impedance:	600 Ω balanced, 47 kΩ unbalanced		
Digital I/O-A (EIAJ CP-1201)	IN	Cannon XLB-3-31 x 1		
		RCA/phono jack x 1		
	OUT	Cannon XLB-3-32 x 1		
		RCA/phono jack x 1		
SYNC Input	BNC connector (Video sync digital wordclock), Video input: 1 V pp (75 Ω)			
SCSI-A Connector	1 x 50 pin Amphenol			
PHONES	1 x 6.3 Ømm stereo phone jack (Maximum output 60 mW, Load impedance 32 Ω)			
FOOT SW	1 x 6.3 Ømm phone footswitch jack			
REMOTE/THRU	8-pin DIN connector (Front panel x 1, Rear panel x 2)			

Specifications (Continued)

Extension Slots x5	SCSI-B, SMPTE, MIDI optional boards	
Mixer Parameters	LEVEL	Channel level (0 ~ 127)
	PAN	Stereo pan position (L63 ~ MID ~ R63)
	SEND1, SEND2	Mono send level (0 ~ 127)
	SENDS	Stereo send level (0 ~ 127)
	SDPAN	Stereo send pan (L63 ~ MID ~ R63)
	BUS	Bus mode (ON, OFF)
	METER	Channel level (PRE, POST)
	MASTER	Master output (0 ~ 127)
	SENDS	Send mode (MONO, STEREO)
	SEND1, SEND2	Mono send (PRE, POST)
	SENDS	Stereo send (PRE, POST)
	METER	Meter mode (NORMAL, HOLD)
Supplied Accessories	Power cable	
	Owner's Manual	
Power Requirements	U.S.A. & Canada	120 V AC, 60 Hz
	Europe	220 - 230/240 V AC, 50 Hz
	Australia	240 V AC, 50 Hz
Power Consumption	120 W (U.S.A. & Canadian model)	
Operating Temperature	5°C ~ 40°C (40°F ~ 105°F)	
Operating Humidity	30% ~ 80% (no condensation)	
Dimensions	483 (W) x 179 (H) x 410 (D) mm (443.5 overall, EIA 4U)	
Weight	15 kg (model DR8HD 15.7 kg)	

Specifications subject to change without prior notice.

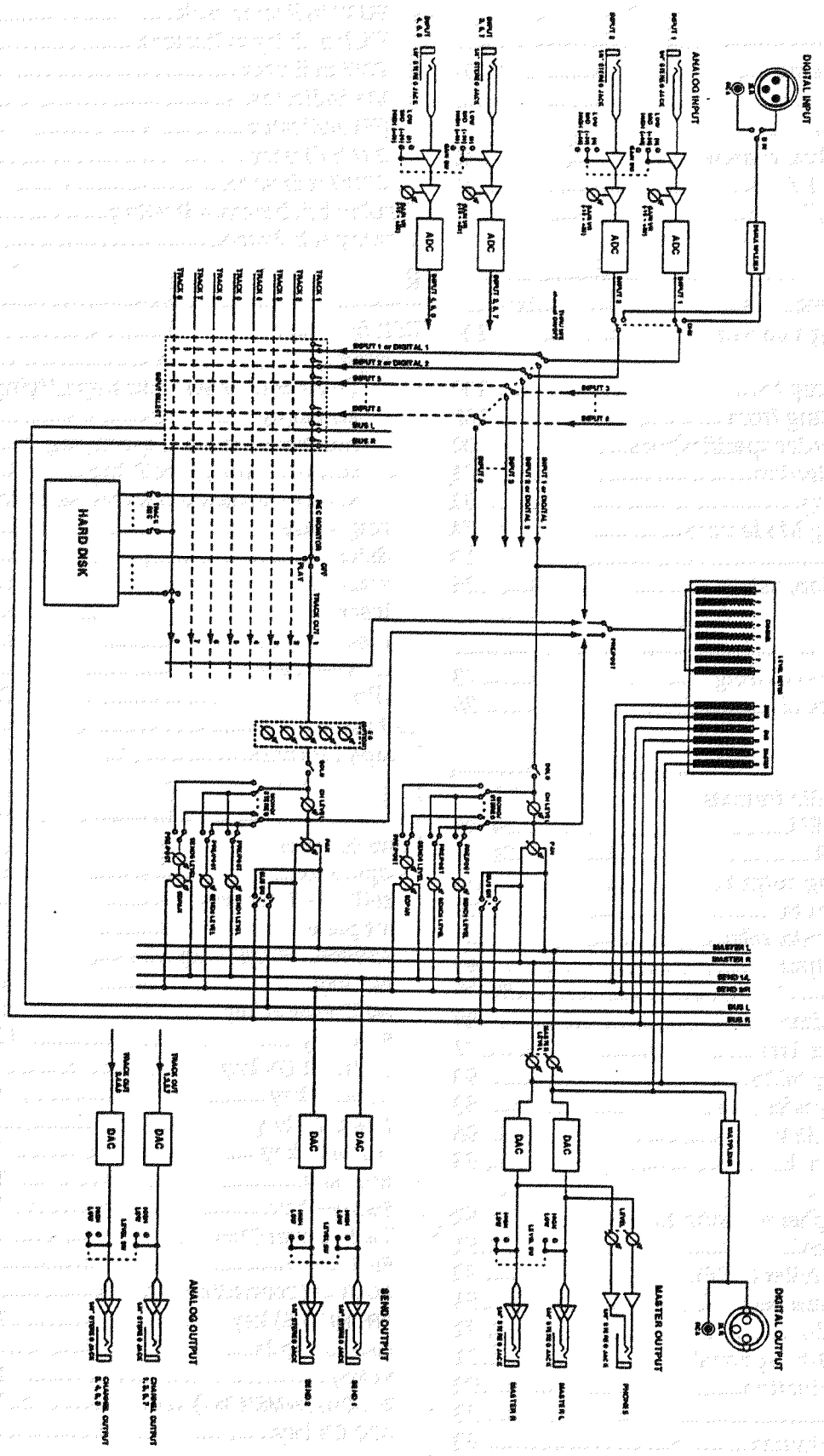
MIDI Implementation Chart

Date: 11/94
Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic channel	Default	X	X	
	Changed	X	X	
Mode	Default	X	X	
	Messages	X	X	
	Altered	**********		
Note Number:	True Voice	X	X	
		**********		
Velocity	Note On	X	X	
	Note Off	X	X	
Pitch Bend		X	X	
Control Change	Setting Range	X	O ON/OFF	CH ON
	OFF	X	O 0 ~ 127	LEVEL (Default 7)
	0 ~ 127 (Any)	X	O 0 ~ 127	PAN L63 - R63 (Default 10)
		X	O 0 ~ 127	SEND1
		X	O 0 ~ 127	SEND2
		X	O ON/OFF	BUS
		X	O 0 ~ 127	MASTER
				MIDI CH 1~8=TRACK MIX 1~8
				MIDI CH 9~16=THRU MIX 1~8
Program Change	Setting Range			
	OFF, 1 ~ 16, OM	**********	O 0~ 99	PC-SNAP
System Exclusive		O (*1)	O (*3)	MTC, MMC
System Common	Song Position	O		
	Song Select	O	O	
	Tune	X		
System Real Time	Clock	O (*2)		
	Command	O		Continue, Stop, Start
Aux Messages	Local On/Off			
	All Notes Off			
	Active Sense			
	Reset			
Notes		(*1) MTC is transmitted only when the SYNC mode is set to MIDI-MTC MASTER - ON. (*2) Clock commands are only transmitted when the SYNC mode is set to MIDI-SPP MASTER - ON. (*3) Support for MMC System Exclusive. The optional IB-803M MIDI interface must be installed in order for the DR8 to receive or transmit MIDI messages.		

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO O: Yes
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO X: No

Block Diagram



Index

A

Absolute time 25, 74
Analog inputs 33
Analog outputs
  individual channel 45
  Master L/R 45
  Send 1/2 45

B

Backup functions 100–103
  creating a backup 100
  DAT
    backup to 100
    loading from 102
    recorder specifications 100
  disk selection 101
  restoring 102
BBC - Song Mode time 25, 74
Beat map 110
Bus function, using 36

C

Channel monitoring 43
Cursor, use of 25

D

Digital audio formats
  AES/EBU 34, 45
  S/PDIF 34, 45
  selecting output 46
Digital inputs 33
Digital inputs, selecting 34
Digital outputs 45
Disks ..... 89–??
  access time 89
  aligning data 97
  capacity table 90
  data transfer rate 89
  erase a disk 96
  format a disk 95
  SCSI
    Amphenol connectors 89
    cables 91
    controller (DR8) 90
    ID numbers 91
    SCSI-A 91
    SCSI-B (optional) 91
    termination 92
  status 93
  track minutes 90
Display
  ABS indicator 25, 74
  BUSY indicator, disk 25
  Disk activity indicators 25
  EDIT indicator 25
  MIX indicator 25
  REL indicator 25, 74
  S-M indicator 25
  SONG indicator 25, 74
Display brightness, adjusting 116
Display sub-frame 116

E

Edit functions 77–88
  copy 79
    destination insert point, specifying ... 79
    executing 81
    number of repeats, specifying 80
    source section, specifying 79
    source/destination tracks, selecting .. 80
  copy+insert 81
  delete 86
  erase 85
  insert 84
  move 82
  move+insert 83
  slip 87
Edit undo 78
Escape function 26

F

From function
  operation 48
  setting FROM time 48
Front panel 7–18
  ABS/REL(OFFSET) key 9, 75
  ALL key 8
  AUTO PUNCH key 16
  BEAT key 17, 113
  CHANNEL ON keys 8
  COMMIT key 16, 66
  DIGI(D IN) key 8
  DISCARD key 16, 67
  EDIT key 16, 80
  ESCAPE key 10, 26
  Fast Forward key 12
  FINE key 10
  FOOT SW connection 18
  FROM(TIME) key 12, 48
  GAIN controls 15
  IN key 16, 28
  IN->OUT(<<MEMO>>) key 12, 49
  JOG ON key 10

JOG/SHUTTLE control 10, 26
LAST 0/– key 11, 27
LOCATE key 9, 27
MIX(MIXER) key 14, 54
numeric keypad 11, 26
1(DISK) key 11, 93
2(DIGI) key 11, 32
3(SET UP) key 11, 116
4(UTILITY) key 11
OUT key 16, 28
OVER key 12, 49
Peak Level meters 8
PHONES connection 14
Phones LEVEL control 14
Play key 13
POWER switch 8
PREROLL(TIME) key 11, 73
REC key 13
REHEARSAL key 14, 43
REMOTE connection 18
REPEAT key 16, 50
RESERVED key 16, 65
RESET key 9, 27
Rewind key 12
SNAPSHOT(MAP) key 14
SOLO key 14, 64
SONG key 17, 112
:/STACK key 11
Stop key 13
STORE/ENT key 10, 27
SUB-MENU key 15, 25
SYNC(SYNC) key 17, 104
TAKE1 to TAKE5 keys 16, 65
TEMPO key 17, 113
THRU MIX key 14, 53
Time and Status display 9
TIME D key 17, 112
TO(TIME) key 12, 47
TRACK REC(INPUT SELECT) keys 8
UNDO key 10, 44
VARI(SPEED) key 17, 52
ZERO RETURN key 13

I

IN point, setting 27
In->out function 49
Input gain levels, setting 33
Input source, setting 35

L

Locate functions 69–73
last memory function 72
locate to a specific point 69
preroll function 73
recalling
direct locate points 70
stack locate points 71
storing
direct locate points 70
direct locate points during playback. 70
stack locate points 71
stack locate points during playback .. 71

M

<<MEMO>> function, using 28
MIDI controllers
assigning 117
bus controller 118
channel level controller 117
device id 119
master level controller 118
MIDI channel 119
mute controller 117
pan controller 118
send level controllers 118
Mixer 53–64
bus send, selecting on/off 56
channel level, setting 54
channel pan position, setting 55
master level, setting 57, 58
meters
normal or peak-hold, selecting 59
peak-hold, clearing 60
pre or post metering, selecting 58
mono or stereo sends, selecting 59
pre or post sends, selecting 59
selecting mix mode 54
send levels
mono send level, setting 56
stereo send level, setting 55
stereo send pan position, setting 55
snapshots
automation mix 63
checking locations 62
erasing locations 63
exclusion of GAIN controls 61
locating 62
recalling 61
storing 61

O

Options
IB-801S SCSI-B interface board 20
IB-802T SMPTE reader/generator board 20, 104
IB-803M MIDI interface board 20, 107

OUT point, setting 27
Over function 49

P

Parameters, setting 26
Playback functions ..... 45–??
Power, connecting 29
Punch-in
  automatic 42
  footswitch 41
  manual 40

R

Rear panel 19–23
  ANALOG INPUT connections 22
  ANALOG OUTPUT connections 22
  DIGITAL I/O
    IN connection 20
    MASTER OUT connection 20, 100
  GROUND connection 23
  Input gain switches 22
  Option slots 20
  OUTPUT
    MASTER OUT connections 22
    SEND connections 22
  Output gain switches 22
  Power connection 23, 29
  REMOTE connection 21
  SCSI-A connection 20, 91
  SCSI-B ID dip switch 21
  SYNC connection 21
  THRU connection 21
  Video Sync TERMINATOR switch 21
Record functions 31–44
Record undo 44
Rehearsal function 43
Relative time 25, 74
Repeat function 50

S

Sampling frequency 31
  sample rates
    32 kHz 31
    44.056 kHZ 31
    44.1 kHz 31
    48 kHz 31
  setting 32
Solo function 64
Song Mode functions ..... 110–??
  beat map 110
    checking 114
    deleting entries from 114
    inserting entries into 114
  song
    initial beat 113
    initial tempo 113
    naming 112
    selecting 112
    start time 112
  tempo map 110
    checking 115
    deleting entries from 115
    inserting entries into 115
Song, definition 111
Sub menu functions 25
Synchronization ..... 104–??
  MIDI 107
    clock (SPP) 109
    connections 107
    machine control (MMC) 109
    timecode (MTC) 109
  SMPTE/EBU 104
    connections 104
    master 106
    slave 106
  Song Mode 110
  sync mode 105
  timecode type 105

T

Takes 65–68
  checking
    take 66
  committing
    specific tracks 68
    take 66
  deleting
    take 67
  storing
    specific tracks 68
    take 65
Tempo map 110
THRU MIX function 53
To function
  operation 47
  setting TO time 47
Tracks, arm for recording 38

U

Undo function 44, 78

V

Varispeed function 52
  operation 52
  setting varispeed 52

SOFTWARE UPDATE Version 1.03

AKAI DR8 Addendum

HARD DISK REDCORDER

1 Back-up

The back-up and restore functions have been updated in Software Version 1.03. This section explains how to back-up and restore the recordings on your DR8 using a DAT recorder.

Connections and preparation

Plug a cable into the DIGITAL I/O - MASTER OUT connection (XLR-type or RCA pin jack). Fasten the other end to the appropriate connection on the DAT recorder:

You must set the DAT machine to match the sampling frequency of the data you want to back up. Refer to the manual that came with your DAT recorder for details of its operation.

Back-up procedure

All the data on the hard disk will be backed up. You cannot select to back-up only a portion of the data on the hard disk.

1) Press the SUB-MENU key, press 1(DISK) key – numeric keypad, then use the JOG/SHUTTLE control to select the back-up function.
   You will see the display [BACKUP].

2) Press the STORE/ENT key.
   You will see the display [ENTIRE 0].

3) Select the hard disk ID number using the JOG/SHUTTLE control.

4) 4)Press the STORE/ENT key.
   You will see the display [TYPE DAT].

5) Press the STORE/ENT key.
   You will see the display [LENGTH: 30]. This mode will allow you to indicate the length of the DAT tape you intend to use.

6) Use the JOG/SHUTTLE control to select the appropriate length.
   You can select from 30, 45, 60, 90, 120, and 180.

7) Press the STORE/ENT key.
   You will see the display [READY??]. If you are ready, start recording on the DAT machine.

8) Press the STORE/ENT key again to execute the back-up operation.
   During the back-up operation, the display shows the [BUSY] message. This message changes to [DONE] when the operation is complete.

   The DR8 returns to normal mode.

   If one DAT tape cannot accommodate the data on the hard disk, the DR8 will temporarily stop

the back-up operation when the end of the tape is close, and display the message [NEW TAPE].

9) Stop the DAT recorder and replace the tape.

10) When you press the STORE/ENT key on the DR8, the display shows the [LENGTH] message again
Select the correct length of the new tape. Then resume recording on the DAT machine.

11) Press the STORE/ENT key.
The DR8 displays [BUSY] and resumes the back-up operation.

Note: Note: You cannot back up one continuous long recording (longer than the length of the tape) over multiple tapes. (The display shows [DAT-ERROR].)

Note: Note: It is possible to use a 180-minute DAT tape. However, a 180 tape is thinner and may cause recording data to drop out, which lowers reliability and integrity of the recorded data.

The DR8 cannot verify the condition or ability of the connected DAT recorder. Therefore, AKAI cannot guarantee the quality or reliability of your back-ups.

Loading procedure

1) Press the SUB-MENU key, press 1(DISK) key – numeric keypad, then use the JOG/SHUTTLE control to select the Restore function.
You will see the display [RESTORE].

2) Press the STORE/ENT key.
You will see the display [RESTORE 0].

3) Select the hard disk ID number using the JOG/SHUTTLE control.
This is the disk you are going to restore the data to.

4) Press the STORE/ENT key.
You will see the display [DIGI XLR]. This mode allows you to select the appropriate digital input (XLR or RCA connector). Use the JOG/SHUTTLE control to select the appropriate input type.

5) Press the STORE/ENT key.
You will see the display [SURE??]. If everything is set correctly, press the STORE/ENT key.
The DR8 will display the message [START TAPE]. Start playback on the DAT recorder.
When the DR8 receives the data, it starts loading data and the display shows the message [BUSY]. The message changes momentarily to [DONE] when the operation is complete, then the DR8 returns to normal mode.

6) If the data has been backed up over multiple tapes, the DR8 will display [NEXT TAPE] when loading the data on the first tape is complete.
Replace the tape and resume playback on the DAT. The DR8 automatically resumes the loading operation when it receives data from the tape.
Note: To load the data stored over multiple tapes, be sure to insert the DAT tapes in the same order as the back-up operation.

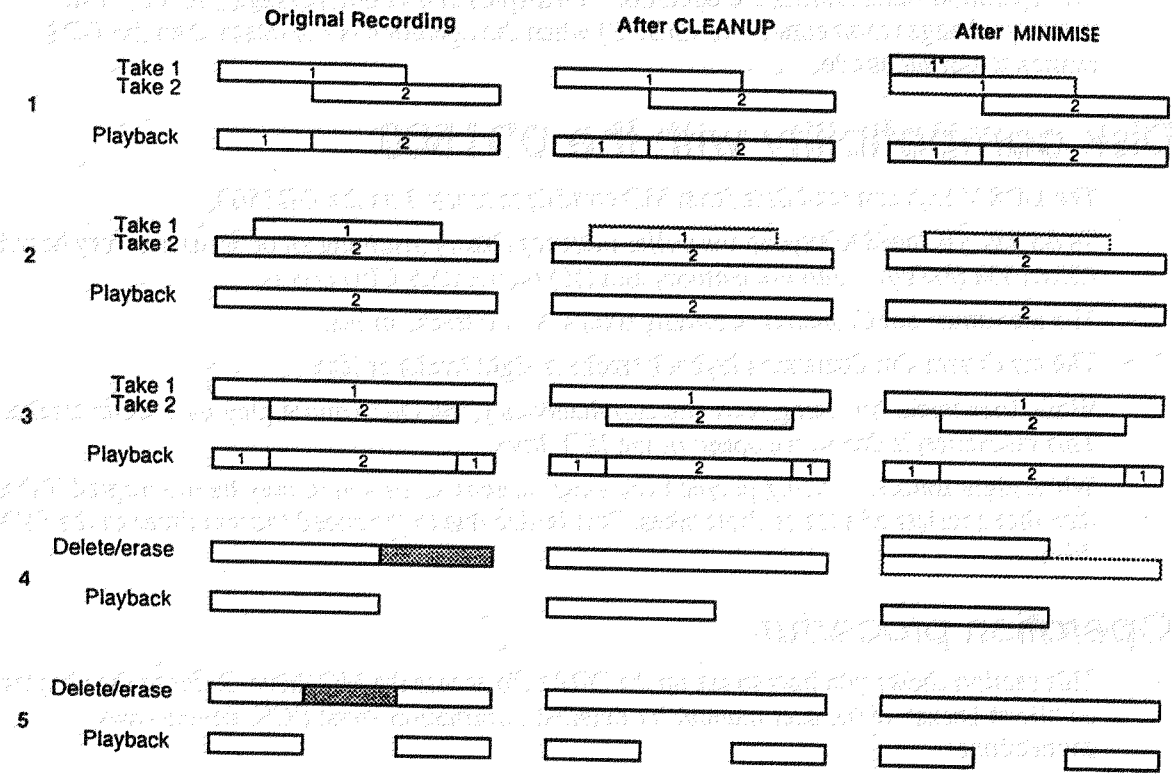
2 Cleanup function and Minimise function

The Data Alignment function [ALIGN] has been renamed the Cleanup function, and now also contains a Minimise function.

The difference between CLEANUP and MINIMISE:

The Cleanup function deletes an entire take from the disk only if the entire take cannot be played back. If a portion of the take can be played back, that take will not be deleted.

The Minimise function deletes the portion of data in a take that cannot be played back. It does this by copying the portion of the take that can be played back to a new take and then deletes the old take. The Minimise function will free more disk space than the Cleanup function will, but it takes more time to perform the operation.



*** All examples show operations on a single track.**

Note: Note: Executing the Minimise function requires a significant amount of free disk space. The first priority is to destroy no data accidentally. It has to make a copy of the portion of the take that can be played back before it removes the original take. Therefore, if your disk is full of recordings, or even close to full, you may not be able to use the Minimise function.

Note: Note: You should use the Minimise function as often as possible to remove the unnecessary data from your hard disk.

Note: Note: The Minimise function cannot operate on a take that has more than one portion that can be played back. The resulting operation would create multiple new takes. This is not allowed. In this case, the Minimise function must leave the original take as it was. See the third and fifth examples in the diagram above.

Cleanup/Minimise procedure

1) Press the SUB-MENU key, press 1(DISK) key – numeric keypad, then use the JOG/SHUTTLE control to select the Cleanup or Minimise function.
   You will see the message [CLEANUP] or [MINIMISE] on the display.

2) Press the STORE/ENT key. Use the JOG/SHUTTLE control to select the SCSI ID of the disk.

3) Press the STORE/ENT key.
   You will see the display [SURE??]. If you wish to execute the cleanup or minimise operation, press the STORE/ENT key again.

   The operation starts.During the operation, the display shows the message [BUSY]. The message changes momentarily to [DONE] when the operation is complete, then the DR8 returns to normal mode.

3 Disk compatibility with the DD1500

The DR8 V.1.03 can read data from MO cartridges created on the DD1500.

To do this, you need to expand the buffer memory size by installing an optional memory board EXM1508 (8Mbyte) into the memory slot (J6) on the DR8 CPU board.

- The maximum simultaneous recording tracks is four tracks or less
- The maximum simultaneous playback tracks is eight tracks or less

While four tracks are being recorded simultaneously, the DR8 cannot play back other tracks. This restriction is due to the speed of the MO drive.

While eight tracks are being played back simultaneously, the sound may be interrupted if the data that consists of a lot of short takes. This is also due to the speed (access time) of the MO drive.

Operation procedure

This section shows you how to set-up the DR8 to to access the MO drive. Refer to the chapter on "Hard Disks" in the user manual for detailed information about SCSI devices and connections.

1) Plug an appropriate SCSI cable into the SCSI-A connector on the rear panel of the DR8. Attach the other end to the corresponding connector on the MO drive (or DD1500x).
   Make sure the SCSI chain is properly terminated.

2) Press the SUB-MENU key and then press 4(UTILITY) key – numeric keypad.
   You will see the display [RE-LOAD].

3) Press the STORE/ENT key.
   You will see the display [SCSI ID *].

4) Use the JOG/SHUTTLE control to select the SCSI ID of the connected drive, and press the STORE/ENT key.
   If the MO disk contains data created on the DD1500, the name of the DD1500 project will appear. If it contains multiple projects, use the JOG/SHUTTLE control to select the desired project name.

5) Press the STORE/ENT key.
   You will see the display [DONE]. You can now use the DR8 to record, playback, and edit the

data on the MO disk that was originally created on the DD1500.

Note: Note: The DD1500 allows you to use the recordings (TAKEs) for multiple projects and save the data in the library. This type of data will not be deleted when you use the DR8's Cleanup or Minimise functions on the MO disk.

The Delete function on the DR8 corresponds to the CUT function on the DD1500. The deleted data will be registered to memory address "0" of the DD1500 Clipboard. Therefore, on the DR8, each time you delete data from the DD1500 disk, the deleted data will overwrite the data registered at address "0" of the Clipboard.

4 Other functions added or modified

Another footswitch function has been added

The PLAY->STOP->PLAY function has been added to the conventional footswitch function. The difference between the previous and new footswitch function is as follows:

- When one of the TRACK REC keys is ON:

  Each time you press the footswitch will change the current operation as follows:

  PLAY->REC->PLAY->REC->PLAY.....

  Use the STOP key on the front panel to stop the playback or recording.

- When all the TRACK REC keys are OFF:

  Each time you press the footswitch will change the current operation as follows:

  PLAY->STOP->PLAY->STOP->PLAY.....

  If you press any TRACK REC key during playback, the footswitch will follow the previous operation sequence.

Addition to the Disk Format function

In addition to the previous Disk Format display message {VERIFYING], another display message [BAD BLOCKS] has been added. This message appears only when a bad block is found on the disk.

Modified digital sync

In the previous software version, DIGI was selected as a sync source if you pressed the DIGI key while the internal clock was set for a sync source.

In this software version, DIGI will be selected when you press the DIGI key and the TRACK REC key for a track which has been set to digital input.

Modified Copy function

An error message appears if you try to copy data from a large capacity disk to a smaller disk, preventing the Copy function from being performed.

DR8 Software Version 1.3

New Features in V1.3

1. Automatic Fade Function
2. Multiple "project file" can be created
3. Destructive recording mode
4. Mixing function by using an optional mixing tab unit (MT8)
5. Alesis ADAT® interface option board (IB-804A)

1. Automatic Fade Function (DR8 - Auto fade)

[FADE] parameter is added in MIX mode.

<How to set Fade Time>

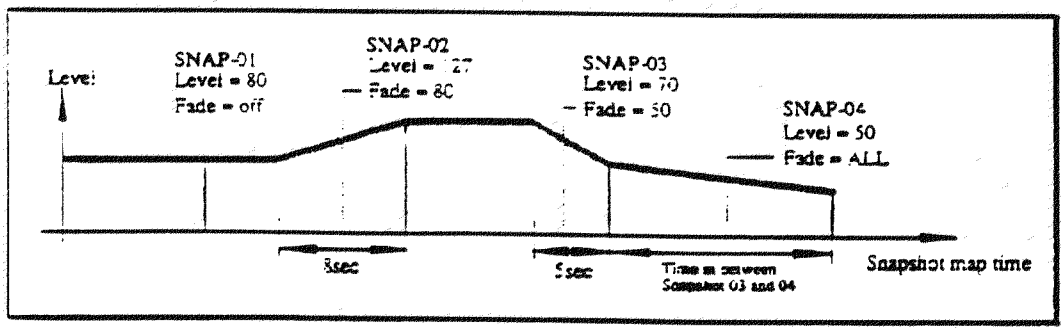
Go to MIX mode and select [FADE***] parameter by jog wheel. There are 3 selections and are:

OFF : Fade OFF mode - Snapshot Map works as auto-mixing without fade function.

001-126 : Fade time is from 100msec (001) up to 12600msec/12.6sec (126). Fade time can be set to Snapshot and determines when to start fading up & down before the FADE assigned Snapshot - *Refer Fig* #1.

All : Fade Function is operated automatically in between the Snapshots - *Refer Fig #1.*

Fig #1



*Fade function: Channel Mix's each channel level, Thru Mix's each channel level and Master level.

Note:

1. MIXER BUSY display - when the intervals of the snapshots are too short and too busy, DR8 displays this message. Please take more intervals in between the snapshots.
2. When DR8 gets too busy because of too many short takes by complicated editings done, DR8's design concept is to select certain tracks to be dropped from playback rather than stopping everything.

2. Multiple "Project" files

<What is Project file>

In previous software versions, there is only one project file in the DR8, therefore, once the working project is completed, it has to be copied or backed up to DAT tape in order to start next project.

In V1.3, multiple project files are available. This allows to create multiple project files in a hard disk, so that when the firstproject is completed, you can move on to next project using same hard disk, if space is available.

<How to create new projects>

1. Sub menu mode - press [4/Utility] and select [NEW PROJ] by a jog wheel - press [STORE/ENT]
2. [SCSI ID*] is displayed - if you want to make a new project into same hard disk, then select same SCSI ID number, if you want to make a new project into another SCSI device, then select its ID number.
3. Press [STORE/ENT]
4. Automatically DR8 displays current project name & number, such as "DR8 DATA 1".
5. If naming is ok, press [STORE/ENT].
6. If renaming is required, name it using by jog and shuttle, and press [STORE/ENT].
7. [DONE] is displayed and DR8 is now under new project working condition.
8. If a new name given already exists in hard disk, [BAD NAME] is displayed - rename it and press [STORE/ENT].

<How to select projects>

1. Sub menu mode - press [4/Utility] and select [LOAD PROJ] by a jog wheel - press [STORE/ENT].
2. [SCSI ID *1] is displayed - Select SCSI ID number where loading project exists.
3. Press [STORE/ENT].
4. Select the project you want and press [STORE ENT].
5. [DONE] is shown to indicate that DR8 is now ready working for the selected project.

<How to delete projects>

1. Sub menu mode - press [4/UTILITY] and select [DEL PROJ] by a jog wheel - press [STORE ENT].
2. [SCSI ID *] is displayed - Select SCSI ID number where you want to delete the project from.
3. Press [STORE ENT].
4. Select the project you want to delete and press [STORE ENT].
5. [SURE??] is displayed.
6. If you want to cancel deleting it, press [ESCAPE].
7. If you want to delete selected pro ject, press [STORE ENT].
8. [DONE] is shown to indicate selected project is deleted.
9. Currently working project can't be deleted and [CAN'T DEL] is displayed.

Note:

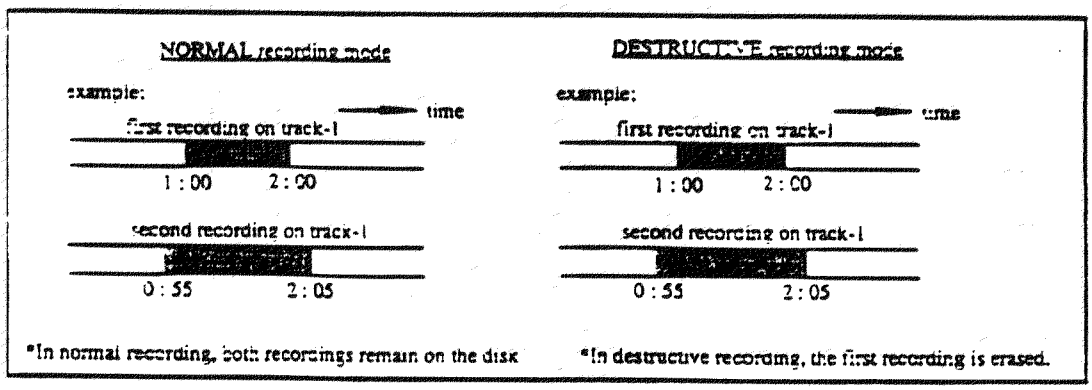
1. Maximum number of files for a hard disk is same as previous software version. so when multiple projects are created in a same hard disk, total of multi project file numbers should not exceed its limitation.
2. Created project files by DR8 are recognized as Project in DD1500.

3. Destructive Recording Mode

<How to select destructive recording mode>

1. Sub menu mode - press [3/SET UP] and select [REC MODE] by a jog wheel - press [STORE/ENT].
2. Select either [NORMAL] or [DESTRUCT] and press [STORE/ENT].
3. NORMAL is currently available recording mode, and DESTRUCT is a new recording mode.

<What is destructive recording>



Note:

1. Destructive recording is effective only when second recording overwrite the whole first recording.
2. UNDO is not available when destructive recording is operated.
3. Destructive recording will only delete audio from the disk which has been recorded into the project since it was last loaded from disk and with the [REC MODE] set to [DESTRUCT].

4. Mixing Tab - MT8

In MT8 operator's manual, following instruction is missing:

1. Connect MT8.
2. Sub menu mode - press [3/SETUP] - select [MT8 CTRL] by a jog wheel - press [STORE/ENT]].
3. By jog and shuttle, set following parameter as you want to:
   SEND 1 ABS or REL
   SEND 2 ABS or REL
   PAN ABS or REL

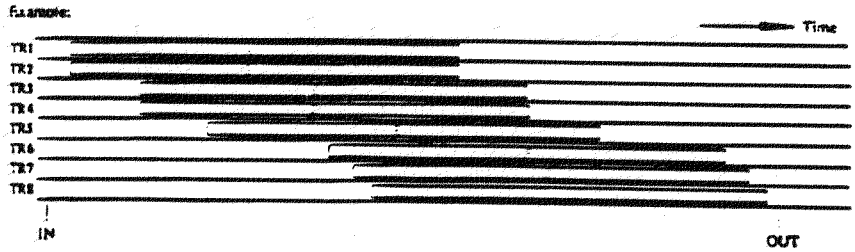
4. This is selection of how you want to operate MT8's SEND 1, 2, and PAN.
5. ABS and REL are explained in MT8 operator's manual.

5. Other improvements

1. When a different frequency digital input is connected, BAD INPUT prompt is displayed when Track Rec key is pressed.
2. When DR8 is LTC MASTER mode, if [SYNC] key is off, timecode will not output.
3. When auto punch recording is completed, automatically AUTO PUNCH's LED goes off.
4. TAKE function:

Improved TAKE function allows to assign IN and OUT points freely so that you can decide which part of recording to be reserved as a take.

1. Decide which part of recording you want to reserve by assigning IN and OUT points.
2. Press RESERVED key.
3. Press wanted TRACK REC keys.
4. When there is no TAKE reserved, all take 1 - 5 keys are flushing, decide where you reserve it and press the one you want.



*When you want to save all 8 track recorded materials (A - E) as a TAKE, assign IN/OUT point as above and press RESERVED key and press TRACK REC key 1 - 8 and press TAKE 1 key (if you want to save it and take 1).

*When recalling (Commit) above TAKE 1, IN and OUT points can't be changed.

*Reserved TAKE data is available for projects, therefore, you may make a copy reserved TAKE audio data to a new project by committing it under new project.

Important note:
DR8 prompts "SLOW DISK" message when it reaches and exceeds the maximum performance ability, since DR8's maximum performance ability is not possible to describe it exactly because it varies and depends on how it is used and the speed of the hard disk used. When "SLOW DISK" message occurs often, it is recommended to use a faster hard disk drive, or install "wave buffer memory".

AKAI DIGITAL

DR8 Version 1.41 Operating System Upgrade

The operating system for the DR8/DR8HD has been upgraded in order to make the following improvements:

1. IB-805R RS422 Interface Board (both in Master and Slave modes) is supported.

2. It can play stereo Cues converted on DD1500 from DD1000 disk.

3. "Mix Master" level appears first in [Mixer] sub-menu paramenter setting.
"Layback on/off" mode has been added in RS422 master mode. When "Layback mode" is switched on and "Auto punch mode" is set, the recording will be made on the VTR side but not on the DR8. This also works in "rehearsal" mode.

[Corrections]
1. Intermittant drop out of record while slaved to LTC is fixed.

2. The failure to chase time code when incoming time code is past " 04:00:00:00.0" is fixed.

3. Support for MMC message from Opcode's "AV Driver" is improved.